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Northern Illinois College of Optometry

Ocular Pathology

Study Outlines

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CHAPTER I.

DEFINITIONS.

I. PATHOLOGY.

The science that treats of disease in all its aspects.

II. ETIOLOGY.

The science that treats of the causes of disease.

III. PROGNOSIS.

Advance judgment regarding the cause, duration and termination of a disease.

IV. DIAGNOSIS.

The recognition of a disease from its symptoms.

V. ANATOMIC DIAGNOSIS.

This is divided into two parts:-

A. Ante mortem.

That which is made before death.

B. Post mortem.

That which is made after death.

VI. DIFFERENTIAL DIAGNOSIS.

By comparing one disease with other diseases.

VII. EXCLUSION DIAGNOSIS.

By excluding all other known conditions.

VIII. PHYSICAL DIAGNOSIS.

This is accomplished by questioning, inspection, palpation, touching and feeling.

A. Percussion.

Tapping and listening to the different sounds.

CHAPTER I.

DEFINITION OF MEDICINE AND OF A DISEASE, WITH
ON THE NATURE OF THE DISEASE.

I. PATHOLOGY.
The science that treats of diseases in all its
branches, as the nature, origin, progress, and
termination of the disease.

II. ETIOLOGY.
The science that treats of the causes of diseases.
A. General, as the nature of the disease, and the
causes which produce it.

III. PROGNOSIS.
Advance judgment regarding the cause, duration,
and termination of a disease.

IV. DIAGNOSIS.
The recognition of a disease from its symptoms.

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By comparing one disease with other diseases.

VII. EXCLUSION DIAGNOSIS.
By excluding all other known conditions.

VIII. PHYSICAL DIAGNOSIS.
This is accomplished by questioning, inspection,
palpation, touching and feeling.

A. Percussion.
Tapping and listening to the different
sounds.

Can be performed by the physician himself.
Medical College of Chicago

B. Auscultation.

Listening to the sounds in a given area, with or without, the aid of a stethoscope.

IX. LABORATORY DIAGNOSIS.

All means by which the fluids, tissues and organs that make up the body are examined, other than those mentioned in physical diagnosis.

X. TOPOGRAPHIC DIAGNOSIS.

Based on the seat of the lesion (any diseased area).

XI. THERAPEUTICS.

All means used in the treatment of diseases.

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Listening to the sounds in a given area, with or without the aid of a stethoscope.

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All means by which the fluids, tissues and organs that make up the body are examined, other than those mentioned in physical diagnosis.

TOPOGRAPHIC DIAGNOSIS

Based on the seat of the lesion (any diseased area).

THERAPEUTICS

All means used in the treatment of disease.

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CHAPTER II.

INFLAMMATION.-

I. DEFINITION.

This is a protective response of body tissue to irritation and is characterized by redness, swelling, heat, pain, impaired function, and as a rule, a discharge.

II. STAGES OF INFLAMMATION.

- A. Irritation: Dilation of the capillaries.
- B. Hyperemia: Increased blood supply causing redness.
- C. Congestion: Abnormal amount of blood in a part.
- D. Stasis: In which there is blood neither coming in nor going out.
- E. Migration: A passing of white blood corpuscles through the capillary walls to the affected area.
- F. Diapedesis: In which the red blood corpuscles break through the vessel walls into the affected area.
- G. Exudation: In which there is a discharge of blood serum, or pus, or both.

III. CAUSES OF INFLAMMATION.

- A. Infection: when caused by some invading organism such as bacteria.
- B. Non-infectious: when due to some foreign inanimate body or by pressure.
- C. Idiopathic: when the cause is unknown.

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- C. Idiopathic: When the cause is unknown.

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IV. GENERAL SYMPTOMS OF INFLAMMATION.

- A. Redness.
- B. Swelling.
- C. Tenderness.
- D. Pain.
- E. Impaired function.
- F. Destruction of terminal nerve endings.

V. RESULT OF INFLAMMATION.

- A. Resolution: the white blood corpuscles destroy the invaders without discharge of pus.
- B. Suppuration: during the process many white blood corpuscles are destroyed by the bacteria. This results in the destruction of other tissue cells in the area. This mass becomes mixed with blood serum and forms a material called pus.

VI. TREATMENT OF INFLAMMATION.

- A. Prophylactic: any means used to prevent the development or spread of disease.
- B. Medical.
- C. Surgical.
- D. Mechanical.

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- A. Prophylactic: any means used to prevent the development or spread of disease.

- B. Medical.
- C. Surgical.
- D. Mechanical.

CHAPTER III.

OCULAR INSPECTION.

I. THINGS TO BE NOTICED BY SIMPLE INSPECTION OF THE EYE.

- A. Are the eyelids red?
- B. Are the margins of the lids red?
- C. Are the lashes stuck together, singly or in a group?
- D. Are the lids stuck together?
- E. Is there an excessive flow of tears?
- F. Are there any signs of styes?
- G. Are there any lumps or kernels on the lids?
- H. Is the cornea clear or hazy?
- I. Are there any spots on the cornea?
- J. Do the eyelashes rub the eyeball?
- K. Do the eyelids turn out or in?
- L. Do the eyelids droop?
- M. Is there any growth on the eyeball?
- N. Is there any photophobia?
- O. Are there any foreign bodies in the eye?

II. OBJECTIVE METHODS OF INVESTIGATION.

- A. Keratotomy.
- B. Ophthalmoscopy.
- C. Focal or oblique illumination.

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- K. Do the eyeballs turn out or in?
- L. Do the eyeballs droop?
- M. Is there any growth on the eyeballs?
- N. Is there any photophobia?
- O. Are there any foreign bodies in the eye?

II. SELECTIVE METHODS OF INVESTIGATION.

- A. Refractometry.
- B. Ophthalmoscopy.
- C. Focal or oblique illumination.

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CHAPTER IV.

EXAMINATION OF THE EYE AND ITS APPENDAGES.

I. LACRIMAL APPARATUS.

- A. Palpate the lacrimal gland for enlargement, prolapse or tumor.
- B. With the patient's eyeball turned toward the nose, press the finger over the lacrimal sac and observe the puncta to determine the presence of pus.

II. LIDS.

- A. Note whether ptosis is present or not.
- B. Examine for oedema, swelling or redness.
- C. Examine the margins for trichiasis, redness, swelling, discharge, scales, crusts, ulcers, tumors etc.
- D. Examine the conjunctiva for congestion, thickening, granulations or discoloration.

III. CONJUNCTIVA.

- A. Examine the ocular conjunctiva for congestion, thickening, chemosis and tumors.
- B. Conjunctival discharges are classified as:
 - 1. Watery: tears, epiphora.
 - 2. Mucous: mucilaginous but clear.
 - 3. Mucopurulent: tenacious, white or yellow.
 - 4. Purulent: creamy, running out of the eyes when the lids are separated.

IV. CONGESTION OF THE EYEBALL.

- A. Conjunctival: vessels are movable with the conjunc-

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II. NOSTRIL.

- A. Note whether mucus is present or not.
B. Examine for color, swelling or redness.
C. Examine the margins for trichiasis, redness, swelling, discharge, crusts, ulcers, tumors etc.
D. Examine the conjunctiva for congestion, thickening, extravasation of blood.

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IV. CONJUGATION OF THE EYEBALL.

- A. Conjunctival vessels are movable with the conjunctiva.

tiva and fade as they approach the cornea.

- B. Ciliary (or circumcorneal): a fine vessel congestion, most intense around the cornea; and pink or violet in color. The vessels do not move with the conjunctiva.
- C. Scleral: conjunctiva movable over it. May be a localized congestion of the fine blood vessels or general congestion of the large blood vessels, perforating the sclera.

V. SCLERA.

Examine for localized swelling, congestion, bulging, or areas of discoloration.

VI. OBLIQUE ILLUMINATION.

- A. Use a dark room.
- B. Hold a +20D, or stronger, so that the image of the light is focussed upon the eye.
- C. Another +20D lens may be used to examine the area illuminated.

VII. CORNEA.

A. Anterior surface.

- 1. Examine by oblique illumination for irregularities, blood vessels, foreign bodies, blisters, ulcers, depressions and opacities.
- 2. The reflection of a window on the cornea, may, when the patient moves his eyes, reveal distortions.

B. Deep layers.

Examine for opacities, leukoma and macula by day-light; and for nebula by oblique illumination.

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B. Olfactory (or circumscissal): a fine vessel connection, most intense around the cornea; and pink or violet in color. The vessels do not move with the conjunctiva.

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B. Deep layers.
Examine for opacities, leukomas and scars by day-light; and for nebulae by oblique illumination.

C. Aqueous chamber.

1. Note whether shallow or not - i.e., the distance between the posterior surface of the cornea and the anterior surface of the iris and lens.
2. Note the clearness of the aqueous, and also if pus and exudate (hypopyon) or blood (hyphaemia) are present.

VIII. IRIS.

- A. Compare the iris of one eye with that of the other.
- B. Muddiness from congestion causes a loss of the fine markings on the surface.
- C. Masses of exudations, tumors or pigment-spots may be observed.
- D. If the lens is absent or dislocated, quivering of the iris may be seen.

IX. PUPIL.

- A. Note if it is in the center of the iris; and notice its shape.
- B. Note reaction to light, by throwing light, by oblique illumination, in and out of the eye.

X. LENS.

- A. Examine by direct and oblique illumination.
- B. Note opacities or any displacement.
- C. A moderate amount of haze, sometimes quite brownish, may be normally present in advanced age, with useful vision present.

C. Aqueous chamber.

1. Note whether shallower or not - i.e., the distance between the posterior surface of the cornea and the anterior surface of the iris and lens.
2. Note the character of the aqueous, and also if pus and exudate (hypopyon) or blood (hyphema) are present.

VIII. IRIS.

- A. Compare the iris of one eye with that of the other.
- B. Markings on the surface.
- C. Markings of endothelium, tumors or pigment-spots may be observed.
- D. If the iris is absent or detached, pulsation of the iris may be seen.

IX. PUPIL.

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- B. Note reaction to light, by throwing light, by oblique illumination, in and out of the eye.

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XI. VITREOUS HUMOR.

Examine for exudate, by direct or oblique illumination, and also with the ophthalmoscope.

XII. ORBIT.

Palpate the bony edges of the orbit for irregularities.

XIII. EYEBALL.

A. Note position, as exophthalmos, enophthalmos or irregularity in size.

B. Tension,

1. Have patient look down: with first two fingers press thru the upper lid until the eyeball is felt.
2. By alternating the pressure of the two fingers the sense of fluctuation is used to determine the tension.

3. The degree of tension may be expressed thus:

T. + 1 = somewhat higher than normal in tension.

T. + 2 = decided rise in tension.

T. + 3 = stony hardness.

T. - 1 = somewhat softer than normal.

T. - 2 = decidedly softer than normal.

T. - 3 = very soft.

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Examine for exudate, by direct or oblique illumination, and also with the ophthalmoscope.

XII. ORBIT.

Palpate the bony edges of the orbit for irregularities.

XIII. EYEBALL.

A. Note position, as exophthalmos, enophthalmos or strabismus.

B. Tension.

Have patient look down: with first two fingers press hard the upper lid until the eyeball is felt.

1. By alternating the pressure of the two fingers the sense of fluctuation is used to determine the tension.

2. The degree of tension may be expressed thus:

$T + 1$ = somewhat higher than normal in tension.

$T + 2$ = decidedly high in tension.

$T + 3$ = stony hardness.

$T - 1$ = somewhat softer than normal.

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CHAPTER V.

DISEASES OF THE LACRIMAL APPARATUS.

I. SECRETING PORTION.

A. Lacrimal gland is rarely affected.

B. The following diseases affect it:

1. Acute non-suppurative inflammation (dacryoadenitis)
2. Acute suppuration.
3. Chronic inflammation (causing hypertrophy).
4. Cystic distention of the ducts (dacryops)
5. Tumors, tuberculosis and syphilis.

II. CONDUCTING PORTION.

A. Puncta and Canaliculi: may show congenital malposition or stenosis (atresia). The most common condition is displacement of the puncta due to ectropion. Foreign bodies and wounds may close the lumen.

Symptom: Epiphora (lacrimation) especially in windy and cold weather.

III. DISEASES OF THE LACRIMAL SAC.

A. Chronic Dacryocystitis. *Inflammation of tear duct.*

1. Synonym.

Blennorrhoea of the lacrimal sac.

2. Definition.

Chronic catarrhal inflammation of the mucous lining of the lacrimal sac.

3. Etiology.

Structure of the nasal duct due to nasal diseases, trauma of the bone, and polypi.

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 3. Chronic inflammation (causing hypertrophy).
 4. Cystic dilatation of the ducts (Stein's).
 5. Tumors, tubercles and epithelioma.

II. DUCTILE PORTION.

- A. Puncta and Canaliculi: may show congenital malformation or stenosis (stricture). The latter common condition is displacement of the punctum due to hypertrophy of the punctal and tarsal may close the lumen.
- Symptoms: Epiphora (lacrimation) especially in windy and cold weather.

III. DISEASES OF THE LACRIMAL SAC.

- A. Chronic Dacryocystitis.
1. Synonym: Inflammation of the lacrimal sac.
 2. Definition: Chronic catarrhal inflammation of the mucous lining of the lacrimal sac.
 3. Etiology: Structure of the nasal duct due to nasal disease, trauma of the bone, and polyposis.

4. Subjective symptoms.

Epiphora and subjective symptoms of chronic conjunctivitis.

5. Objective symptoms.

Sac is distended and is felt as an elastic tumor. When pressed, the contents are forced out thru the puncta or nose. Lids are red and swollen. There may be conjunctival discharge. Conjunctivitis and blepharitis are present. The caruncle is swollen.

6. Course.

May exist for years, but often becomes abscessed. The disease as a rule does not improve. Necrosis of adjoining bone tissue may result.

7. Diagnosis.

Lacrimation, and discharge of muco-purulent fluid thru puncta, when pressure over sac is exerted, is conclusive.

8. Treatment.

Medical and Surgical.

B. Abscess of the Lacrimal Sac.

1. Synonyms.

Purulent dacryocystitis; Phlegmon.

2. Definition.

Acute suppurative inflammation of the sac and surrounding tissues.

3. Etiology.

Follows chronic dacryocystitis. Infection is the immediate cause.

4. Pathology.

Pyogenic bacteria excite an acute inflammation.

4. Subjective symptoms.
Euphoric and subjective symptoms of chronic
conjunctivitis.

5. Objective symptoms.
See is distended and is felt as an elastic
tumor. When pressed, the contents are forced out
thru the puncta or tears. Lid is red and
swollen. There may be conjunctival discharge.
Conjunctivitis and blepharitis are present. The
cornea is swollen.

6. Course.
May exist for years, but often becomes
absorbed. The disease as a rule does not im-
prove. Results of adjoining bone disease may re-
sult.

7. Diagnosis.
Lacrimation, and discharge of mucopurulent
fluid thru puncta, when pressure over eye is
exerted, is conclusive.

8. Treatment.
Medical and Surgical.

9. Abscess of the lacrimal sac.

1. Synonyms.
Purulent dacryocystitis; Chalazion.

2. Definition.
Acute suppurative inflammation of the sac
and surrounding tissues.

3. Etiology.
Follows chronic dacryocystitis. Infection
is the immediate cause.

4. Pathology.
Pyogenic bacteria excite an acute inflammation.

5. Subjective Symptoms.

Sudden attack of severe and throbbing pain in the region of the sac.

6. Objective Symptoms.

Skin is tense, swollen, red and tender. Lids are swollen. General fever, anorexia and lassitude may be present. Unless opened the abscess may burst on the surface and leave a permanent fistulous tract.

7. Diagnosis.

By the history of lachrimation; and the involvement of the sac by abscess formation. Must not be confused with abscess of the lids, at the inner canthus, or bone diseases, in that region.

8. Treatment.

Medical and surgical.

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6. Subjective symptoms.
Sudden attack of severe and throbbing pain
in the region of the ear.

6. Objective symptoms.
Skin is tense, swollen, red and tender.
Lids are swollen. General fever, anorexia and
tinnitus may be present. Unless opened the
abscess may burst on the surface and leave a
permanent fistulous tract.

7. Diagnosis.
By the history of inflammation, and the in-
volvement of the ear by abscess formation. Must
not be confused with abscess of the lids, at the
inner canthus, or bone disease, in that region.

8. Treatment.
Medical and surgical.

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CHAPTER VI.

DISEASES OF THE LIDS.

I. BLEPHARITIS MARGINALIS.

A. Synonyms.

Blepharitis ciliaris; Tinea tarsi;
Blepharoadenitis. *Ring worm*

B. Definition.

A chronic inflammation of the margins of the lids, accompanied by the formation of scales and crusts, congestion, thickening and ulceration.

C. Etiology. *things that lead to it*

Underlying cause is a badly treated conjunctivitis. Error of refraction, poor hygiene, lowered general health, late hours, dust and smoke, are also contributory causes.

D. Clinical Classification.

1. Ulcerative.

In which lashes fall out but do not grow again.

2. Non-ulcerative.

In which lashes fall out and are replaced.

E. Symptoms.

General eye symptoms. At first, margins are hyperemic; which condition comes and goes, when there is exposure to wind, dust, smoke etc. or when the eyes are strained or late hours are kept. Later there is a formation of scales and crusts (non-ulcerative type), or minute pustules are found, which rupture and form hard crusts and scabs, under which ulcerations occur (ulcerative type).

F. Course.

CHAPTER VI.
ON THE DISEASES OF THE EYE.
OF THE EYE.

I. INFLAMMATIONS OF THE EYE.

A. *Phlegmon of the eye*.
Phlegmon of the eye.
Phlegmon of the eye.

B. *Phlegmon of the eye*.
A *phlegmon of the eye* is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.

C. *Phlegmon of the eye*.
A *phlegmon of the eye* is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.

II. *Phlegmon of the eye*.

A. *Phlegmon of the eye*.
In *phlegmon of the eye* the *phlegmon of the eye*.
It is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.

B. *Phlegmon of the eye*.
A *phlegmon of the eye* is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.
It is a *phlegmon of the eye*.

Most common in children. May last for years causing a loss of lashes and thickened and everted lids.

- G. Treatment. *Stimulative*
Mechanical, medical (local and constitutional) and correction of hygienic errors. *Wash thoroughly.*
Yellow oxide of mercury

II. HORDEOLUM.

- A. Synonym.

Stye. *Primary infection*
Local

- B. Definition.

An acute, circumscribed, suppurative inflammation at the margin of the lids, having its beginning in the glands.

- C. Etiology.

Eyestrain, impaired vitality, digestive disturbances. The immediate cause is a pyogenic infection.

- D. Symptoms.

At first, a burning and itching followed by a red, swollen area at the lid margin. An abscess forms, comes to a head, and finally discharges. An extensive oedema may be present.

- E. Course.

Three days to a week, or more often, they are repeated. Occasionally they do not reach the stage of suppuration, but are aborted, or remain as a hard swelling (blind stye).

- F. Treatment. *Refract*

Medical (local and systemic); thermal; surgical; and mechanical.

III. CHALAZION.

not an infection

- A. Synonyms.

pure degenerative process in meibomian gland and not in hair follicle

causing a loss of latex and thickened and over-
distended.

2. Treatment (local and constitutional)
and suggestion of hygienic errors.

II. HEMORRHOIDS

A. Definition

B. Definition

C. Definition

D. Definition

E. Definition

F. Definition

G. Definition

H. Definition

I. Definition

J. Definition

K. Definition

L. Definition

M. Definition

N. Definition

O. Definition

P. Definition

Q. Definition

Tarsal tumor; Meibomian cyst.

B. Definition.

Meibomian cyst

Chronic affection of the meibomian glands with a hard swelling in the lids.

C. Etiology.

Chalazia may be due to infection. Most cases are due to the stoppage of a Meibomian duct and an accumulation of the discharge in a gland.

D. Pathology.

Chronic inflammation, showing formation of granulation tissue, originating in the gland. Microscopically the tumor shows little connective tissue, but many cells and no capsule.

E. Subjective Symptoms.

Occasionally there are some inflammatory symptoms in the beginning. The roughened conjunctiva may cause irritation.

F. Objective Symptoms.

Appears as a round or elongated tumor, size of a pea to a walnut. It firmly adheres to the tarsal plate and the skin is movable over it. The conjunctiva over it is dark in color.

G. Course.

May appear without inflammation or at first it may be mistaken for a sty. In the later stages the center of the chalazion may break down and discharge a yellow fluid on the conjunctiva. This is followed by the formation of polypoid masses. Chalazia may be single or multiple. They may disappear spontaneously or their course may be protracted.

H. Treatment.

Thermal, Medical and Surgical.

Testal tumor; Melibionian cyst.

E. Pathology.

Unusually affection of the melibionian glands with a hard swelling in the lids.

C. Etiology.

Chalazia may be due to infection. Most cases are due to the stoppage of a melibionian duct and an accumulation of the discharge in a gland.

D. Pathology.

Chronic inflammation, showing formation of granulated tissue, originating in the gland. Microscopically the tumor shows little connective tissue, but many cells and no capsule.

E. Subjective Symptoms.

Occasionally there are some inflammatory symptoms in the beginning. The hardened contents give no cause of irritation.

F. Objective Symptoms.

Appears as a round or elongated tumor, also of a red to a white. It firmly adheres to the tarsal plate and the skin is movable over it. The conjunctiva over it is dark in color.

G. Course.

May appear without inflammation or at first it may be mistaken for a cyst. In the later stages the center of the chalazion may open and discharge a yellow fluid on the conjunctiva. This is followed by the formation of a hard mass. Chalazia may be single or multiple. They may disappear spontaneously or their course may be protracted.

H. Treatment.

Thermal, medical and surgical.

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IV. ENTROPION.

*2 Types of scar
+ spasm*

A. Definition.

A condition in which the lid margin is turned in toward the eyeball.

B. Etiology.

Commonly due to scar contraction of the palpebral conjunctiva (cicatricial entropion) which is due to trachema, burns or wounds. It may be caused by spasmodic condition of the Orbicularis muscle of the lower lid as seen in elderly people (spasmodic entropion). The spasmodic type is also seen in children, when great photophobia is present, as found in ulcers of the cornea.

C. Symptoms.

Lashes brush against the eyeball, eventually causing irritation and congestion of the eyeball and corneal ulceration.

D. Treatment.

Surgical.

V. ECTROPION.

*{ paralytic oblique muscle
accidental*

A. Definition.

A turning outward of the lid margin.

B. Etiology.

Due to thickening of the conjunctiva and margin of the lid; to scars on the skin due to wounds, burns, ulceration or caries of the orbit; to relaxation of the tissues of the lids or paralysis of the Orbicularis muscle. It occurs mostly in elderly people.

C. Symptoms.

Conjunctiva is exposed. Epiphora, irritation and chronic conjunctivitis are present. The lower lid is more often affected.

*Loses all moisture
cant close eyes*

IV. ENTROPION.

A. Definition.

A condition in which the lid margin is turned inward toward the eyeball.

B. Etiology.

Commonly due to scar contraction of the palpebral conjunctiva (ectropion) which is due to trachoma, burns or wounds. It may be caused by spasmodic contraction of the orbicularis muscle of the lower lid as seen in elderly people (spasmodic entropion). The spasmodic type is also seen in children, when great photophobia is present, as found in ulcers of the cornea.

C. Symptoms.

Lashes brush against the eyeball, eventually causing irritation and congestion of the eyeball and corneal ulceration.

D. Treatment.

Surgical.

V. ECTROPION.

A. Definition.

A turning outward of the lid margin.

B. Etiology.

Due to thickening of the conjunctiva and margin of the lid; to scars on the skin due to wounds, burns, ulceration or cancer of the orbit; to relaxation of the tissues of the lids as a consequence of the orbicularis muscle. It occurs mostly in elderly people.

C. Symptoms.

Conjunctiva is exposed. Epiphora, irritation and chronic conjunctivitis are present. The lower lid is more often affected.

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D. Treatment.

Medical and surgical.

VI. PTOSIS.

A. Definition.

A drooping of the upper lid.

B. Etiology.

A paralysis or insufficiency of the levator palpebrarum muscle. It may be congenital or acquired. The latter form may be associated with paralysis of other muscles supplied by the third nerve, following diseases such as syphilis or brain diseases. It may also be due to mechanical causes, as in the increased size of the lid when it is affected by trachoma, tumors etc.

C. Symptom.

The patient tries to raise the lid by holding his head back and contracting the frontalis muscle.

D. Treatment.

Surgical.

VII. INJURIES OF THE LIDS.

Wounds and burns may be followed by ectropion, entropion and symblepharon.

VIII. MISCELLANEOUS DISEASES OF THE LIDS.

A. Emphysema.

Inflation of the subcutaneous tissue by air. Appearance of oedema; but a crackling sensation is experienced when palpated.

X B. Ecchymosis (Black Eye).

Settling of blood in the loose subcutaneous tissue following a contusion.

Elder people rupture in small vessel due to degeneration

C. Oedema.

D. Treatment. Medical and surgical.

VI. PTOSIS.

A. Description of the upper lid.

B. Etiology.

A paralysis or insufficiency of the levator palpebræ superioris. It may be congenital or acquired. The latter form may be associated with paralysis of other muscles supplied by the third nerve. Following diseases such as syphilis or brain tumor. It may also be due to mechanical causes, as in the increased size of the lid when it is affected by granules, tumors etc.

C. Symptoms. The patient tries to raise the lid by holding his head back and contracting the frontalis muscle.

D. Treatment.

E. Surgical.

VII. INJURY OF THE LID.

Wounds and burns may be followed by ectropion, entropion and symblepharon.

VIII. MISCELLANEOUS DISEASES OF THE LID.

A. Erythema.

Inflammation of the superficial tissues by exposure of cold; but a striking sensation is experienced when palpated.

B. Hemorrhage (Bleed Eye).

Spilling of blood in the loose subconjunctival tissue following a contusion.

C. Cancers.

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Serous exudate into the subcutaneous tissue causing fluctuating swelling. Follows injuries, disease of the lids, urticaria (hives), nephritis, and cardiac diseases. It may be idiopathic.

D. Abscess of the lid.

Usually traumatic.

E. Syphilis.

Rare. May occur as a chancre, mucous patch of the conjunctiva, gumma (nodular tumor), or tertiary ulcer.

F. Lupus.

Tubercular disease of the skin.

G. Blepharospasm.

Involuntary contraction of the orbicularis muscle. May be a tonic or clonic spasm. Fibrillary twitching is the most common form. May be hysteric in origin. It may appear as a symptom of some disease.

H. Lagophthalmos.

Lids cannot be completely closed. Due to injuries, scar contractions, exophthalmos, and to paralysis of the orbicularis muscle.

I. Diseases of the skin of the lids.

1. Erythema (redness due to capillary congestion).
2. Eczema (inflammation with vesicles, infiltration, watery discharges, and scales and crusts).
3. Erysipelas herpes zoster (inflammation with small vesicles in clusters).
4. Syphilis.

J. Epicanthus.

Congenital deformity. A ridge of skin extends from the inner end of the eyebrow to the side of the nose, causing the latter to have the appear-

ance of a broad bridge.

- K. Coloboma of the lid.
Cleft in the eyelid.

IX. TUMORS OF THE LID.

A. Benign.

Warts, dermoid cysts, milia, cutaneous horns, small transparent cysts at lid margins (glands of Moll) Molluscum contagiosum, Xanthelasma and vascular tumors.

B. Malignant.

Sarcoma, (rare). Rodent ulcers (carcinomata).

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... of a ...
... of the ...
... in the ...

IX. TUMORS OF THE LID.

- A. Benign.
- Warts, dermoid cysts, milium, sebaceous horns,
small transparent cysts of the eyelids (cysts of
Moll), telangiectases, xanthelasma and various
other tumors.
- B. Malignant.
- Sarcoma, (rare), Ependymoma (rare).



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CHAPTER VII.

CONJUNCTIVITIS (OPHTHALMIA).

I. CLASSIFICATION.

Conjunctivitis	Catarrhal	{ Acute Chronic
	Purulent	{ Ophthalmia neonatorum Gonorrheal conjunctivitis
	Follicular	
	Granular - Trachoma	
	Phlyctenular	
	Membranous	{ Croupous Diphtheritic

II. IMPORTANT NOTE.

The examiner should learn to distinguish between the varieties of conjunctival discharge.

- A. Watery (tears): Occurs in stenosis of the conducting apparatus etc.
- B. Mucous: Clear and mucilaginous. Example: Chronic conjunctivitis.
- C. Mucopurulent: White or yellow and tenacious. Example: Acute and chronic conjunctivitis.
- D. Purulent: Creamy. Runs out of the eye when lids are separated. Example: Gonorrheal conjunctivitis.

III. ACUTE CATARRHAL CONJUNCTIVITIS.

A. Synonyms.

Neumococcus

Acute mucopurulent, or acute contagious conjunctivitis; and acute epidemic conjunctivitis, or "Pink-eye."

CONJUNCTIVITIS (OPHTHALMIA).

I. CLASSIFICATION.

Acute	Cатарhal
Chronic	Chronic
Gonorrheal conjunctivitis	Torment
Gonorrheal conjunctivitis	Pollicular
Gonorrheal conjunctivitis	Granular - Trachoma
Gonorrheal conjunctivitis	Infarctular
Gonorrheal conjunctivitis	Membranous
Gonorrheal conjunctivitis	Membranous

II. IMPORTANT NOTE.

The student should learn to distinguish between the varieties of conjunctival discharge.

A. Watery (tears): Occurs in stenosis of the conjunctiva.

B. Mucous: Clear and viscid, Example: Chronic conjunctivitis.

C. Mucopurulent: White or yellow and retentive, Example: Acute and chronic conjunctivitis.

D. Purulent: Greasy, runs out of the eye when lids are separated. Example: Gonorrheal conjunctivitis.

III. ACUTE CATARRHAL CONJUNCTIVITIS.

A. Symptoms. Acute inflammation, or acute conjunctivitis, is characterized by redness, swelling, and discharge of tears; and acute epidemic conjunctivitis is characterized by a rapid onset and a profuse discharge of tears.

B. Definition.

An acute catarrhal inflammation, particularly of the conjunctiva of the lid.

C. Etiology.

Exposure to wind, smoke, dust, irritating gases or foreign bodies. Infections are due to Bacillus Koch-Weeks, Bacillus Morax-Axenfeld, pneumococci, staphylococci and streptococci. It is epidemic in Spring and Fall.

D. Clinical Varieties.

Simple and infectious; the latter usually due to bacillus Koch-Weeks.

E. Subjective Symptoms.

About 36 hours after exposure, patient complains of stiffness of the lids, burning, smarting, photophobia, and a sensation of foreign bodies. No actual pain, but great discomfort, especially in the evening.

F. Objective Symptoms.

Lids swollen and red. Bulbar conjunctiva congested, that of lids thick, rough and congested. There is a mucopurulent discharge at the root of the lashes or on the conjunctiva. The lids stick together in the morning. Lacrimation, and maybe, a slight interference with vision; but mucous discharge on the cornea. There may be minute ulceration of the cornea. The eye appears red; hence, the term "Pink-eye".

G. Diagnosis.

Made by the muco-purulent discharge, deep conjunctival congestion, clear vision and absence of pain. In the true "Pink-eye", there is a history of contagion.

H. Course.

As a rule, one eye is attacked a few days in

B. Distribution. The acute external inflammation, particularly at the conjunctiva of the eye.

C. Etiology. Exposure to wind, smoke, dust, irritating gases or foreign bodies. Infections are due to bacillus Koch-Weske, bacillus Morax-Axenfeld, pneumococcus, streptococcus, and staphylococcus. It is epidemic in Syria and Egypt.

D. Clinical Varieties. Simple and infectious; the latter usually due to bacillus Koch-Weske.

Subjective symptoms. About 36 hours after exposure, constant sense of itching of the lids, burning, watering, photophobia, and a sensation of foreign bodies. No redness, but great discomfort, especially in the evening.

E. Objective symptoms. Lids swollen and red. Outer conjunctiva congested, lid of lid thick, rough and congested. There is a mucopurulent discharge at the root of the lashes on the conjunctiva. The lids stick together in the morning. Inflammation, and maybe, slight interference with vision; but mucous discharge on the cornea. There may be minute ulceration of the cornea. The eye appears red; hence, the term "Pink-eye".

F. Diagnosis. Made by the mucopurulent discharge, deep conjunctival congestion, clear vision and absence of pain. In the true "Pink-eye", there is history of contact.

H. Course. As a rule, one eye is attacked a few days in

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advance of the other. Most cases recover quickly. The stage of discharge may last a week or more. Chronic conjunctivitis or blepharitis may be the sequelae.

I. Treatment.

Prophylactic and medical.

IV. CHRONIC CATARRHAL CONJUNCTIVITIS.

A. Definition.

A chronic catarrhal inflammation usually affecting the palpebral conjunctiva only.

B. Etiology.

Dust, night work, late hours, error of refraction, nasal catarrh, and constitutional diseases such as rheumatism and gout. May follow acute conjunctivitis.

C. Subjective Symptoms.

Smarting, itching, burning, feeling of foreign bodies, blurring, photophobia, dryness, heaviness and sleepiness.

D. Objective Symptoms.

The conjunctival appearance varies from slightly red to deep congestion. There may be cheesy deposits on the surface. The lid margins are hyperemic, with a watery or purulent discharge. The skin is excoriated at the outer and inner canthi. The discharge sticks the lids together in the morning.

E. Course.

Runs a long course with increase of symptoms at intervals. Both eyes are usually affected.

F. Treatment.

Medical (local and systemic); and mechanical. Sometimes the disease is intractable.

advance of the other. Most cases recover quickly.
The stage of discharge may last a week or more.
Chronic conjunctivitis or blepharitis may be the
sequel.

I. Treatment.

Prophylactic and medical.

IV. CHRONIC CATARRHAL CONJUNCTIVITIS.

A. Definition.

A chronic catarrhal inflammation usually af-
fecting the conjunctival conjunctiva only.

B. Etiology.

Local, right work, late hours, error of refraction,
chronic nasal catarrh, and constitutional diseases such
as rheumatism and gout. May follow acute conjunctivitis.

C. Subjective symptoms.

Burning, itching, burning, feeling of foreign
bodies, watering, photophobia, dimness, heaviness and
discharge.

D. Objective symptoms.

The conjunctiva appears red and swollen. There may be cheesy
deposits on the surface. The lid margins are hyper-
emic, with a watery or purulent discharge. The skin
is excoriated at the outer and inner canthi. The dis-
charge sticks the lids together in the morning.

E. Course.

Runs a long course with increase of symptoms
at intervals. Attacks are usually recurrent.

F. Treatment.

Medical (local and systemic); and surgical.
Sometimes the disease is intractable.

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V. OPHTHALMIA NEONATORUM.

A. Synonyms.

Purulent conjunctivitis in the infant; acute blennorrhoea; gonorrhoeal conjunctivitis in the new-born.

B. Definition.

Severe purulent conjunctivitis of the new-born due to infection by the gonococcus of Neisser.

C. Symptoms.

Swelling and redness, 2 or 3 days after birth, followed by a discharge which becomes creamy.

D. Complications.

Leucoma, anterior staphyloma or destruction of the eyeball.

E. Course.

Two to six weeks, followed by a chronic conjunctivitis.

F. Prognosis.

Good, if treated early, before the cornea is affected.

G. Prophylaxis (Crédé Method).

1 to 2% solution of silver nitrate is dropped into the conjunctival sac at birth. Salt solution is used immediately after. This procedure has greatly reduced the percentage of blindness since it has become obligatory.

VI. GONORRHEAL CONJUNCTIVITIS.

A. Synonyms.

Blennorrhoea; purulent conjunctivitis in the adult.

B. Definition.

V. GONORRHOIC CONJUNCTIVITIS

A. Synonyms.

Purulent conjunctivitis in the infant; acute gonorrhoea; gonorrhoeal conjunctivitis in the new-born.

B. Definition.

Severe purulent conjunctivitis of the new-born due to infection by the gonococcus of Neisseria.

C. Symptoms.

Swelling and redness, 2 or 3 days after birth, followed by a discharge which becomes creamy.

D. Complications.

Iritis, keratitis, staphylococcal infection of the eyelid.

E. Course.

Up to six weeks, followed by a chronic conjunctivitis.

F. Prognosis.

Good, if treated early, before the cornea is attacked.

G. Prophylactic Treatment.

1 to 2% solution of silver nitrate is dropped into the conjunctival sac at birth. Salt solution is used immediately after. This procedure has greatly reduced the percentage of blindness since it has become obligatory.

VI. GONORRHOIC CONJUNCTIVITIS

A. Synonyms.

Gonorrhoea; gonorrhoeal conjunctivitis in the adult.

B. Definition.

Gonorrhoea of the conjunctiva in the adult.

A serious, purulent conjunctivitis due to infection by the gonococcus.

C. Etiology.

The gonococcus of Neisser. May be conveyed to the eyes from discharges and infected articles.

D. Symptoms.

Swelling and tension of the eyelids. Purulent discharge oozing from between the lids. Conjunctiva thickened. Little pain but great discomfort. Cornea soon becomes infiltrated and ulcerated. The ulcers perforate, causing destruction of the eye, or they may cause corneal opacities.

E. Course.

One eye first affected. The other may not be if carefully shielded. Runs from two to six weeks, followed by a chronic conjunctivitis with a thick, granular conjunctiva.

F. Prognosis.

Grave.

G. Treatment.

Medical and prophylactic.

VII. CHRONIC FOLLICULAR CONJUNCTIVITIS.

A. Synonym.

adenoid Tissue
Follicularis.

B. Definition.

A chronic affection of the palpebral conjunctiva, characterized by follicles, and very few, or no signs, of inflammation.

C. Etiology.

Occurs in the young, especially strumous (scrofula or tuberculosis of lymph glands) children, living under unhygienic conditions. It may also be

A serious, purulent conjunctivitis due to infection by the micrococcus.

C. Etiology.
The micrococcus of Hansen. May be conveyed to the eye from discharges and infected articles.

D. Symptoms.
Swelling and tension of the eyelids. Purulent discharges coming from between the lids. Conjunctiva thickened. Little pain but great discomfort. Some cases become inflamed and ulcerated. The ulcers perforate, causing destruction of the eye, as they may cause corneal opacities.

E. Course.
One eye first affected. The other may not be so severely affected. Runs from two to six weeks, followed by a chronic conjunctivitis with a thick, granular conjunctiva.

F. Prognosis.
Grave.
G. Treatment.
Medical and prophylactic.

VII. CHRONIC FOLLICULAR CONJUNCTIVITIS.

A. Synonyms.
Follicularis.
B. Definition.
A chronic affection of the conjunctiva, characterized by follicles, and very few or no signs of inflammation.

C. Etiology.
Occurs in the young, especially around (scrofula or tuberculous of lymph glands) children. It may also follow other unhealthy conditions.

infectious.

D. Pathology.

The follicles are lymphoid tissue masses, resembling trachoma follicles.

E. Subjective Symptoms.

Resemble those of a mild, chronic catarrhal conjunctivitis.

F. Objective Symptoms.

The follicles are found in the fornix and nasal region of the lower lid, and in the conjunctiva of the upper lid at the margin and ends of the tarsal plate. They appear as small, round, pale elevations.

G. Diagnosis.

May be mistaken for trachoma.

H. Treatment.

Medical.

VIII. TRACHOMA.

A. Synonyms.

Granular conjunctivitis; Granulated lids; Egyptian ophthalmia.

B. Definition.

A contagious disease of the conjunctiva, in which granulation is a prominent feature.

C. Etiology.

Believed to be a bacterium discovered by Richards in 1927 and isolated by the Rockefeller Institute. The disease is found among the poorer classes. It is more common among Jews and Irish. It is also common among the American Indians.

D. Pathology.

D. Pathology

It is also common among the American Indians. The disease is found among the poorer classes. It is more common among Jews and Arabs. Believed to be a bacillus discovered by Richards in 1917 and isolated by the Rockefeller Institute. The disease is found among the poorer classes. It is more common among Jews and Arabs.

C. Etiology
A contagious disease of the conjunctiva, in which granulation is a prominent feature.
B. Definition
Granular conjunctivitis; Granulated lids; Synonymy.
VIII. TRACHOMA

Medical

H. Treatment

G. Prognosis
May be mistaken for trachoma.

Diagnosis
The follicles are found in the fornix and nasal region of the lower lid, and in the conjunctiva of the upper lid at the margin and ends of the tarsal plates. They appear as small, round, pale elevations.

F. Objective symptoms
Conjunctivitis
Resembles those of a mild, chronic catarrh of conjunctivitis.
E. Subjective symptoms
Resembles trachoma follicles.
The follicles are lymphoid tissue masses, resembling trachoma follicles.
D. Pathology
Infantile

Trachoma follicles have a scanty connective stroma, with lymph cells and incomplete capsule, and are imbedded in the conjunctiva.

E. Symptoms.

Photophobia, lacrimation, sticking of lids, mucous or muco-purulent discharge. When a lid, especially the upper, is everted, masses of irregular projecting granulations will be seen, gray in color and about the size of grains of sage.

F. Complications.

Pannus and corneal ulcers.

G. Sequelae.

Ectropion, entropion, trichiasis, symblepharon, corneal opacities, staphyloma, etc.

H. Course.

Chronic.

I. Treatment.

Prophylactic, medical and surgical.

J. Differential Diagnosis:

Chronic Follicular Conjunctivitis	Trachoma
-----	-----
1. Occur mostly in youth.	1. Any age.
2. Granulations small, round, and in rows.	2. Granulations larger, but less prominent.
3. Occur mostly at nasal side of lower lid and at edge and extremities of upper tarsal plate.	3. More evenly distributed.
4. Amenable to treatment; and granulations leave without a trace.	4. When treated and relieved, granulations leave scars,

Trachoma follicles have a scanty connective tissue, with lymph cells and immature corpuscles, and are imbedded in the conjunctiva.

E. Symptoms.

Photophobia, lacrimation, sticking of lids, mucus or mucopurulent discharge. When a lid, especially the upper, is everted, masses of irregular profuse granulations will be seen, gray in color and about the size of grains of sand.

F. Complications.

Pannus and corneal clouds.

G. Sequelae.

Entropion, ectropion, trichiasis, symblepharon, corneal opacities, staphyloma, etc.

H. Course.

Chronic.

I. Treatment.

Prophylactic, medical and surgical.

J. Differential Diagnosis.

Chronic follicular

Conjunctivitis

Trachoma

1. Occurs mostly in youth.	1. Any age.
2. Granulations small, round, and in rows.	2. Granulations larger, and less prominent.
3. Occurs mostly at nasal side of lower lid and at apex and extension of upper tarsal plate.	3. More evenly distributed.
4. Immune to treatment; and granulations leave when a cure is effected.	4. When treated and removed, granulations leave scars.

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IX. PHLYCTENULAR CONJUNCTIVITIS.

A. Synonyms.

Scrofulous ophthalmia; Eczematous conjunctivitis.

B. Definition.

A disease of the bulbar conjunctiva, characterized by small papules or pustules.

C. Etiology.

Probably due to a micro-organism often accompanied by nasal catarrh. The same condition is often seen on the face at the same time. Occurs in strumous children and in the ill-nourished.

D. Subjective symptoms.

Photophobia, irritation and lacrimation. If the phlyctenules are not near the cornea, the child complains but little.

E. Objective symptoms.

One or more pustules surrounded by an area of congestion appear on the bulbar conjunctiva. The pustules may break down and form ulcers. The phlyctenules may form in rapid succession, each lasting a week or so. Relapse is common. If the lesion occurs at the margin of the cornea, the condition is known clinically as phlyctenula marginalis.

F. Treatment.

Medical (general and local).

X. MEMBRANOUS CONJUNCTIVITIS.

A rare disease occurring in two forms:

A. Croupous Conjunctivitis.

It is the most common. There is a membranous deposit which leaves a bleeding surface if removed. It may be a complication of a severe conjunctivitis in children, of infectious diseases, or it may fol-

Diphtheria

low superficial burns.

Glands swell

B. Diphtheritic Conjunctivitis.

Caused by the Klebs-Loeffler bacillus. The lids are swollen, tender, red and stiff. The palpebral conjunctiva presents a dirty yellow diphtheritic membrane. The general symptoms of diphtheria are present. Necrosis occurs, which results in granulations and cicatrices, which deform the lid. The cornea and the whole eye may be affected.

XI. INJURIES OF THE CONJUNCTIVA.

They consist of foreign bodies on the conjunctiva; wounds; and burns.

XII. MISCELLANEOUS DISEASES OF THE CONJUNCTIVA.

A. Spring Catarrh.

1. Synonyms.

Pink eye
Conjunctiva aestiva; Vernal catarrh.

2. Definition.

A recurrent, uncommon disease, showing the presence of nodules around the edges of the cornea, together with hard, pale, flat granulations on the conjunctiva of the upper lid.

3. Etiology.

Unknown.

4. Symptoms.

Some irritation, photophobia and a sensation of foreign bodies. The disease appears in Spring, Fall or Summer; disappearing during the Winter.

5. Treatment.

Medical, but unsatisfactory.

B. Symblepharon.

A union of the conjunctiva of the lid and eye-

low superficial burn.
 B. Diphtheritic conjunctivitis.
 Caused by the diphtheria bacillus. The lids are
 swollen, tender, red and stiff. The conjunctival con-
 junctiva presents a dirty yellow diphtheritic mem-
 brane. The general symptoms of diphtheria are pres-
 ent. Treatment consists in the use of antiseptics
 and electricity, which before the lids. The cornea and
 the whole eye may be affected.

XI. INJURIES OF THE CONJUNCTIVA.
 They consist of foreign bodies on the conjunctiva;
 wounds; and burns.

XII. ACUTE AND CHRONIC DISEASES OF THE CONJUNCTIVA.

A. Acute Conjunctivitis.

1. Catarrh.
 Conjunctivae acutae; Vesical catarrh.
 B. Definition.
 A common, uncommon disease, showing the
 presence of a thin grayish film on the cornea,
 together with red, pale, flat granulations on the
 conjunctiva of the inner lid.

2. Etiology.
 Unknown.

C. Symptoms.
 Some irritation, photophobia and a sense
 of foreign bodies. The disease appears in
 spring, fall or summer; disappearing during the
 winter.

D. Treatment.
 Mild, but unsatisfactory.

E. Prognosis.
 A union of the conjunctiva of the lid and the

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ball producing adhesion. It follows wounds, burns and trachoma.

C. Pinguecula.

A small, yellow nodule on the bulbar conjunctiva, near the cornea, and as a rule on the nasal side. It is a hyaline degeneration and is common in middle and old age. Occasionally it becomes inflamed. No treatment necessary.

D. Pterygium.

1. Definition.

A membranous growth with its base near the inner or outer canthus and with its apex toward the center of the cornea.

2. Etiology.

It is formed of hypertrophied conjunctiva. Some cases are believed to be an extension of pinguecula.

3. Symptoms.

The patient complains only when the condition is advanced to the point of producing astigmatism or of reducing vision. The growth occurs usually on the nasal side. If it is non-progressive it is dry, thin and non-vascular. The progressive type is thick and congested.

4. Course.

Many years.

5. Treatment.

Surgical.

E. Chemosis of the Conjunctiva.

Oedema of the ocular conjunctiva, accompanying violent inflammations of the eye.

F. Xerosis.

ball producing absorption. It follows wounds, burns and fractures.

C. Pterygia. Small, yellow masses on the bulbar conjunctiva, near the corner, and as a rule on the nasal side. It is a hyaline degeneration and is common in middle and old age. Occasionally it becomes inflamed. No treatment necessary.

D. Pterygia. It is a growth of the conjunctiva into the cornea.

1. Definition. A membranous growth with its base near the inner or outer canthus and with its apex toward the center of the cornea.

2. Etiology. It is formed of hypertrophied conjunctiva. Some cases are believed to be an extension of pterygia.

3. Symptoms. The pterygia sometimes only when the condition is advanced, and when it produces interference of or obstructing vision. The growth occurs usually on nasal side. It is non-progressive it is thin and non-vascular. The progressive type is thick and congested.

4. Course. Many years.

5. Treatment. Surgical.

6. Chemicals of the Conjunctiva. Causes of the ocular conjunctiva, accompany the violent inflammations of the eye.

7. Venereal.

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Two different affections:

1. Advanced cicatricial contraction of the conjunctiva which is dry. It follows severe conjunctival diseases such as trachoma.
2. White plaques occur on the ocular conjunctiva probably caused by the Xerosis bacillus. The deposit is membranous and greasy appearing.

The first cannot be treated; but the second can be treated medically and surgically.

G. Ecchymosis of the Conjunctiva.

An extravasation of blood beneath the conjunctiva following rupture of the blood vessels. Caused by injury, and coughing; and sometimes appears spontaneously, in elderly people.

H. Pemphigus of the Conjunctiva.

Blisters occur and are followed by scar tissue which destroys the conjunctiva.

I. Tumors of the Conjunctiva.

Cysts, dermoid, angioma, papilloma, lipoma, fibroma, epithelioma and sarcoma.

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Transparency
Structure

1st

What to look for
inspection of cornea

{ signs of swelling
infiltration - areas of gray deposits
scars.
curvature
Lustre

Prodent ulcer (type of serpentine)

Knawing + eating type worst type
of all. Eats deep + perforates the cornea.

3 agents of atrophin - always puts
eye to rest.

puts qris out danger

2nd is heat

3rd is pressure

Keratis disciformes
leaves scar
very + not painful

Keratis Siccaus - dry
cornea becomes atrophy
no pain, insensibile

CHAPTER VIII.

DISEASES OF THE CORNEA.

I. ULCER OF THE CORNEA.

A. Definition.

A superficial loss of substance, with infiltration of the surrounding cornea.

B. Etiology.

General ill-health; or lowered nutrition of the cornea. Common among the poorer classes. May be produced by a foreign body or may be associated with diseases of the lacrimal apparatus and conjunctiva.

C. Pathology.

The cornea becomes infected and the superficial layers necrosed. The following organisms may be the infective agents, viz.: streptococcus, staphylococcus, pneumococcus, Morax-Axenfeld bacillus, aspergillus and gonococcus.

D. Varieties. =

1. Simple or non-progressive.

2. Infected or progressive.

E. Clinical varieties.

1. Phlyctenular ulcer (in phlyctenular Keratitis)

2. Traumatic ulcer: from abrasions or wounds.

3. Serpentine ulcer (Soemisch ulcer): infective ulcer with advancing crescent edge.

4. Dendritic ulcers: branched, superficial, infective ulcer. Does not accompany paralytic keratitis.

5. Ring ulcer: encircling the periphery of the cornea.

6. Indolent or absorption ulcer: no signs of inflammation, occurs in marasmic infants, in the

*edges rounded + clear
no infiltration*

*edges sharply defined
always discolored
flow is rough no lustre*

*always iris
Primary
Epithelial
Temporary
Vessels*

*occurs
Deep*

No circulation. nutrition by osmosis

*trophic
tube*

CHAPTER VIII

DISEASES OF THE CORNEA

I. ULCER OF THE CORNEA

A. Definition. A superficial loss of substance, with infiltration of the surrounding cornea.

B. Etiology. General ill-health; or lowered nutrition of the cornea. Common among the poorer classes. May be produced by a foreign body or may be associated with diseases of the lacrimal apparatus and conjunctiva.

C. Pathology. The cornea becomes infected and the superficial layers necrosed. The following organisms may be the infective agents, viz.: streptococcus, staphylococcus, pneumococcus, Micro-organisms, bacillus, and vibrios and gonococcus.

D. Varieties.

1. Simple or non-progressive.
2. Infected or progressive.

E. Clinical varieties.

1. Pterygiform ulcer (in which the pterygia are involved).
2. Traumatic ulcer: from abrasion or wounds.
3. Corneal ulcer (diseased ulcer): infective ulcer with advancing necrotic edge.
4. Herpetic ulcer: branched, superficial, latent.
5. Ulcer of the cornea: the peripheral part of the ulcer.
6. Ulcer of the cornea: the central part of the ulcer.
7. Ulcer of the cornea: the peripheral part of the ulcer.
8. Ulcer of the cornea: the central part of the ulcer.
9. Ulcer of the cornea: the peripheral part of the ulcer.
10. Ulcer of the cornea: the central part of the ulcer.

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aged and those in ill-health.

7. Catarrhal ulcer: accompanies catarrhal conjunctivitis.

F. Subjective Symptoms.

Lacrimation, photophobia, sensation of foreign bodies, pain, and interference with vision if the ulcer is in the pupillary area.

G. Objective Symptoms.

Circumcorneal injection, and some conjunctival congestion. The ulcers vary in shape, appearance and extent. Oblique illumination will reveal a loss of substance and a grayish opacity.

H. Course.

Single ulcers heal in a week or so. Infected ulcers may spread and attack the healthy tissues, penetrating the lower layers and even perforating the cornea. When healing begins, vascularization of the cornea may occur.

I. Complications.

Opacities, adherent leucoma (iris is caught in the scar), staphyloma with prolapsed iris, hypopyon of the aqueous chamber, iritis, panophthalmitis, etc.

J. Treatment.

Medical; local and systemic.

II. INTERSTITIAL KERATITIS. *Very well known*

A. *Synonym.*

in between tissues infiltration
Diffused parenchymatous keratitis.

B. *Definition.*

2nd infection.
A chronic inflammation of the cornea characterized by deep opacities and circumcorneal injection.

C. *Etiology.*

syphilitic infection
Commonly occurs in children having congenital

and also in ill-treatment.
T. Carotid sinus: accompanied carotid artery-
stroke.

F. Subjective symptoms.
Insolation, photophobia, sensation of foreign
bodies, pain, and interference with vision if the
ulcer is in the pupillary area.

G. Objective symptoms.
Ophthalmic infection, and some conjunctival
congestion. The ulcers vary in shape, appearance and
extent. Ulcer illumination will reveal a loss of
substance and a typical opacity.

H. Course.
Single ulcers heal in a week or so. Infected
ulcers may spread and attack the healthy tissues,
penetrating the lower lobe and even perforating the
cornea. When healing begins, vascularization of the
cornea may occur.

I. Complications.
Opacities adherent lamellae (this is caused by
the scar), staphylococci with purulent discharge,
of the aqueous humor, iritis, panophthalmitis, etc.

J. Treatment.
Medical: local and systemic.

II. INTERSTITIAL KERATITIS.

A. Synonyms.
Diffuse parenchymatous keratitis.

B. Definition.
A chronic inflammation of the corneal stroma
initiated by deep opacities and circumferential infection.

C. Etiology.
Commonly occurs in children having congenital

syphilis. Rarely seen in acquired syphilis. Also may be due to gout, rheumatism, malaria, rachitis and tuberculosis and also may be idiopathic.

D. Pathology.

Infiltration by leucocytes and sometimes deep vascularization at the margin of the cornea.

E. Subjective Symptoms.

Poor vision, photophobia and some pain.

F. Objective Symptoms.

Opacities, usually as a gray cloud at the margin. They may spread and cover the cornea, appearing white, mottled or yellow. Deep vascularization from the scleral vessels, causing a red spot (salmon patch). Surface is rough, dull and steamy. Rarely any ulceration, although the cornea may weaken and form a staphyloma.

G. Constitutional Objective Symptoms.

Of congenital syphilis; Hutchinson's teeth (notched margins); scars at angles of mouth and forehead; face prematurely wrinkled; head square and large; bridge of nose flat; chronic nose and ear diseases.

H. Course.

Both eyes affected as a rule. Disease occurs between five and fifteen years, although it may be delayed until the age of thirty years. Course is slow: (two months to a year). Often the opacities clear up but impaired vision occurs in several cases. Relapses often occur.

I. Complications.

Inflammations of the uveal tract.

J. Treatment.

Medical: local and systemic.

syphilis. Rarely seen in acquired syphilis. Also may be due to rubeola, rheumatism, malaria, trachoma, and tuberculosis and also may be idiopathic.

D. Pathology.

Inflammation by leucocytes and sometimes deep vascularization at the margin of the cornea.

E. Subjective Symptoms.

Poor vision, photophobia and some pain.

F. Objective Symptoms.

Opacities, usually as a gray cloud at the margin. They may spread and cover the cornea, appearing white, mottled or yellow. Deep vascularization from the scleral vessels, causing a red spot (Hutchinson patch). Surface is rough, dull and sticky. Rarely any ulceration, although the cornea may weaken and form a staphyloma.

G. Constitutional and Objective Symptoms.

Of constitutional syphilis; Hutchinson's teeth (notched margins); scars at angles of mouth and forehead; face prematurely wrinkled; head square and large; bridge of nose flat; chronic nose and ear diseases.

H. Course.

Both eyes affected as a rule. Disease occurs between five and fifteen years, although it may be delayed until the age of thirty years. Course is slow (two months to a year). Often the opacities clear up but impaired vision occurs in several cases. Relapses often occur.

I. Complications.

Inflammations of the nasal tract.

J. Treatment.

Medical: local and systemic.

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III. PHLYCTENULAR KERATITIS.

A. Definition.

A disease characterized by small pustules on the cornea.

B. Etiology.

Strumous children and the undernourished.
Rarely seen in adults. May be of bacterial origin.

C. Varieties.

1. Vesicular Keratitis: an advancing curved infiltration with vascularization from it to the margin of the cornea. It may creep across the cornea leaving opacities.

2. Multiple ulcers with vascularization.

D. Symptoms.

Tonic blepharospasm. Photophobia so great that the patient completely covers his eyes.

E. Treatment.

Medical: local and systemic.

IV. STAPHYLOMA OF THE CORNEA.

A. Synonym.

Ectasia corneae.

B. Definition.

A bulging of the cornea, not due to hypertrophy or swelling of its tissues.

C. Etiology.

Follows weakening of the cornea by disease. May be partial or total, the latter preventing closure of the lids. The eye is usually blind from previous pathological conditions.

III. INFLAMMATORY KERATITIS.

A. Definition.

A disease characterized by small pustules on the cornea.

B. Etiology.

Common in children and the undernourished. Rarely seen in adults. May be of bacterial origin.

C. Varieties.

1. Vesicular keratitis: An advancing curved infiltration with vasculature from it to the margin of the cornea. It may creep across the cornea leaving opacities.

2. Multiple ulcers with vasculature.

D. Symptoms.

Local inflammation. Photophobia is great. The patient completely covers his eyes.

E. Treatment.

Medical: Local and systemic.

IV. STAPHYLOMA OF THE CORNEA.

A. Synonym.

Keratic cornea.

B. Definition.

A bulging of the cornea, not due to hypertrophy or swelling of its tissues.

C. Etiology.

Follows weakening of the cornea by disease. May be partial or total, the latter preventing vision of the light. The eye is usually blind from previous pathological conditions.

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D. Treatment.

Surgical.

V. KERATOCONUS.

A. Synonym.

Conical cornea.

B. Definition.

A gradual bulging of the transparent cornea, assuming a conical form with the apex at or near the center. Usually begins in youth, but may occur at any age. There is no inflammation and it may become stationary.

C. Subjective symptom.

Increasingly defective vision.

D. Objective symptoms.

When marked, can be readily seen by a side view. When slight, a reflex from a window appears distorted, being lengthened on every side from the apex. There are high astigmatism and myopia present. The apex may show an opacity; and ulcerate.

E. Treatment.

Non-progressive cases may show improved vision with cylinders. Progressive cases require surgical treatment.

VI. INJURIES, FOREIGN BODIES AND WOUNDS.

A. Abrasions.

The anterior epithelial layers are torn off, causing pain, photophobia and lacrimation.

B. Burns.

May be caused by chemicals (especially acids and alkalis), steam, hot metals and hot water. If the burns are superficial, they heal readily. If they are deep, the scars may affect vision.

C. Treatment.

When the cornea is inflamed, the patient should be kept in a dark room and the eye should be treated with antiseptics and anodynes.

V. KERATOCONUS.

A. Symptoms.

Conical cornea.

B. Pathology.

A conical bulging of the transparent cornea, assuming a conical form with the apex at or near the center. Usually begins in youth, but may occur at any age. There is no inflammation and it may become stationary.

C. Subjective symptoms.

Increasingly defective vision.

D. Objective symptoms.

When marked, can be readily seen by a side view. When slight, a reflex from a window appears distorted, being lengthened on every side from the apex. There are high astigmatism and myopia present. The apex may show an opacity and discoloration.

E. Treatment.

For progressive cases may show improved vision with cylindrical refractive error requires surgical treatment.

VI. INJURIES, FOREIGN BODIES AND WOUNDS.

A. Abrasions.

The anterior epithelial layer is torn off, causing pain, photophobia and lacrimation.

B. Burns.

May be caused by chemicals (especially acids and alkalis), steam, hot metals and hot water. If the burns are superficial, they heal readily. If they are deep, the scars may affect vision.

C. Foreign bodies.

These range from particles of dust to pieces of steel. Use oblique illumination and magnifying glass.

D. Perforating wounds.

They may open the anterior chamber and allow the aqueous to escape. If it is a simple, non-infective puncture, healing occurs in a few days with a resulting scar. Infected cases may produce grave inflammatory conditions.

VII. MISCELLANEOUS DISEASES OF THE CORNEA.

A. Superficial Keratitis (Vascular Keratitis or Pannus).

Vascularization and infiltration of the cornea. Often complicates trachoma.

B. Herpes Zoster Ophthalmicus.

A herpes of the cornea when the 5th nerve is affected by herpes. Scars are left on the cornea.

C. Herpes Corneae.

Recurrent eruption, of several hours duration, of small vesicles on the corneal surface. It causes pain, irritation and the sensation of foreign bodies. The symptoms disappear when the vesicle ruptures. It may follow corneal injuries and abrasions.

D. Keratitis Bullosa.

Large blisters occurring usually on the cornea of a diseased eye.

E. Sclerosing Keratitis.

A dense white opacity of the cornea, accompanying scleritis.

F. Filamentous Keratitis.

An ulceration with threads attached at one end.

These range from patches of dust to pieces of steel. Use oblique illumination and magnifying glass.

D. Penetrating wounds. They may open the anterior chamber and allow the aqueous to escape. If it is a single, non-infective puncture, healing occurs in a few days with a resulting scar. Infected cases may produce grave inflammatory conditions.

VII. MISCELLANEOUS DISEASES OF THE CORNEA

A. Superficial Keratitis (Vascular Keratitis or Pannus). Vascularization and infiltration of the cornea. Often complicated by trachoma.

B. Herpes Zoster Ophthalmicus. Herpes of the cornea when the 5th nerve is affected by herpes. Scars are left on the cornea.

C. Herpes Corneae. Recurrent eruption of several hours duration of small vesicles on the corneal surface. It causes pain, irritation and the sensation of foreign bodies. The symptoms disappear when the vesicles rupture. It may follow corneal lacerations and abrasions.

D. Keratitis Bullosa. Large blisters occur usually on the cornea of a diseased eye.

E. Sclerosing Keratitis. A dense white opacity of the cornea, known as leucoma opacum.

F. Filamentous Keratitis. An ulceration with threads attached to the

and.

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Degeneration in Days
-37- *No lesions visible on*
not infection *tissue*
surface

→ G. Keratitis Profunda.

A deep central interstitial inflammation in the adult. It may be due to malaria, rheumatism or exposure.

H. Ribbon-shaped Keratitis (or transverse calcareous film.)

A grayish-white band horizontally crossing the cornea. It is hard and contains lime. Follows eye-diseases or degeneration.

I. Pigmentation of the Cornea.

Stain from blood pigment or from the presence of iron or steel (siderosis).

→ J. Neuroparalytic Keratitis.

Caused by a lesion of the 5th nerve, characterized by ulceration, necrosis and anesthesia, which are caused by undetected foreign bodies and trophic changes.

K. Posterior Punctate Keratitis (Descemetitis).

Minute triangular-shaped deposits, with the base down, occurring on the lower portion of the posterior surface of the cornea. It is a manifestation of uveal diseases.

L. Superficial Punctate Keratitis.

There are small elevated opacities on the anterior part of the cornea with irritation and congestion of the eye.

VIII. TUMORS OF THE CORNEA.

These are rare.

Sarcoma, epithelioma, dermoid, fibroma and papilloma have been described, occurring mostly at the limbus.

IX. ARCUS SENILIS (GERONTOMYX).

A ring-like opacity at the margin but with a narrow zone of clear cornea between it and the sclera.

IX. ACUS SEMILIS (SEMILIS).
A ring-like opacity at the margin but with
narrow zone of clear cornea between it and the center.

VIII. TUMOR OF THE CORNEA.
These are rare.
Sarcoma, epithelioma, dermoid, fibroma and
papilloma have been described, occurring usually at the
limbus.

I. Superficial Punctate Keratitis.
There are small elevated opacities on the
anterior part of the cornea with irritation and con-
gestion of the eye.

II. Posterior Punctate Keratitis (Desmometritis).
Minute triangular shaped deposits, with the
base down, occurring on the lower portion of the
posterior surface of the cornea. It is a manifesta-
tion of myeloid changes.

III. Interstitial Keratitis.
Caused by a lesion of the 5th nerve, charac-
terized by ulceration, necrosis and anasthesia,
which are caused by undetected foreign bodies and
trophic changes.

IV. Pigmentation of the Cornea.
Stain from blood pigment or from the presence
of iron or steel (siderosis).

V. A grayish-white band horizontally acrossing
the cornea. It is hard and contains lime. Follows
eye-disease or degeneration.

VI. Ribbon-shaped Keratitis (or transverse calcareous
film).
A band acrossing the cornea.

VII. Keratitis Profunda.
A deep central interstitial inflammation in
the cornea. It may be due to malaria, rheumatism or
exposure.

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It is a fatty degeneration or hyaline deposit occurring in elderly people. It is not pathological as a rule.

X. ARCUS JUVENILIS.

Occurs in the young and it may indicate vascular disease.

A. Definition.

A local inflammation characterized by elevated, whitish or yellowish patches on the cornea.

B. Etiology.

Occurs in youth, especially those subject to rheumatism, diabetes, gout, syphilis or tuberculosis or it may be idiopathic.

C. Varieties.

1. Epitheliar; involving the superficial layers.

2. Collyerian; involving the whole depth of the cornea.

D. Symptoms of Epitheliar.

Moderate photophobia, irritation and pain. Bright red or violet patch is seen on the cornea near the periphery. Frequent weeping.

E. Symptoms of Collyerian.

Enlarged form with severe pain, tenderness, lacrimation.

Red, yellow or violet, elevated patches on the cornea, which may encircle the cornea.

The iris, iris and ciliary body may be involved.

F. Complications.

Keratitis, conjunctivitis, iritis and anterior uveitis.

The disease may thin and weaken the cornea, leading to myopia from internal pressure.

Glaucoma may follow.

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Disease of Conjunctiva

Herpes Zoster - inflammation of nerve ^{endings}

cause band around chest,

of the 5th nerve.

attack especially costal nerves.

Herpes Zoster ophthalmicus a girdle

in region of eye, attaches face

in region of upper fifth nerve,

in brow in cheek.

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CHAPTER IX.

DISEASES OF THE SCLERA.

I. SCLERITIS.

*not primary
Secondary infection*

A. Definition.

A local inflammation characterized by elevated, congested and discolored patches in the sclera.

B. Etiology.

causes rheumatism

Occurs in adults, especially those subject to rheumatism, malaria, gout, syphilis or tuberculosis, or it may be idiopathic.

C. Varieties.

1. Episcleritis: involving the superficial sclera.
2. Scleritis: involving the whole depth of the sclera.

D. Symptoms of Episcleritis.

Moderate photophobia, irritation and pain. A bright red or violet patch is seen on the sclera near the cornea. Frequent relapses.

E. Symptoms of Scleritis.

Serious form: quite severe pain, tenderness, lacrimation.

Red, yellow or violet, elevated patches on the sclera, which may encircle the cornea.

The cornea, iris and ciliary body may be involved.

F. Complications.

Keratitis, cyclitis, iritis and anterior uveitis.

The disease may thin and weaken the sclera, producing staphyloma from internal pressure.

Glaucoma may occur.

CHAPTER IX
DISEASES OF THE EYE

I. SCLELITIS

A. Definition

A local inflammation characterized by elevated, congested and discolored patches in the sclera.

B. Etiology

Occurs in adults, especially those subject to rheumatism, malaria, syphilis or tuberculosis, or it may be idiopathic.

C. Pathology

1. Scleritis; involving the superficial sclera.
2. Scleritis; involving the whole depth of the sclera.

D. Symptoms of Scleritis

Moderate photophobia, irritation and pain. A bright red or violet patch is seen on the sclera near the cornea. Tearing and redness.

E. Symptoms of Scleritis

Various forms: acute severe pain, tenderness, lacrimation.
Red, yellow or violet elevated patches on the sclera, which may encircle the cornea.
The cornea, iris and ciliary body may be involved.

F. Complications

Rheumatism, syphilis, trichiasis and entropion.
The disease may thin and weaken the sclera, producing staphyloema from internal pressure. Glaucoma may occur.

Scleritis may leave permanent dark-bluish spots at the site of the lesion.

G. Treatment.

Medical: local and systemic.

II. STAPHYLOMA.

A. Definition.

A bulging of the sclera without any thickening of its tissues.

B. Causes and Symptoms.

It follows scleritis.

Injury that weakens the cornea and sclera.

Occurs in diseases of the ciliary body and choroid when increased tension is present.

It occurs as dark-bluish elevations.

C. Treatment.

Surgical.

III. POSTERIOR STAPHYLOMA.

A. Definition.

Bulging of the sclera around the optic nerve.

It is associated with high myopia.

B. Treatment.

Surgical.

IV. INJURIES OF THE SCLERA.

Injuries may produce rupture of the eyeball.

Incised wounds, if large, may be accompanied by prolapse of the ciliary body and choroid, or by loss of the vitreous.

Infection may follow which may result in panophthalmitis or shrinking of the eyeball. (Phthisis bulbi).

Scleritis may leave permanent dark-blistish spots at the site of the lesion.

G. Treatment.
Medicinal: local and systemic.

II. STAPHYLOMA.

A. Definition.
A bulging of the sclera without any thickening of its lamellae.

B. Causes and symptoms.
It follows scleritis.
Injury that weakens the cornea and sclera.
Occurs in diseases of the ciliary body and choroid when increased tension is present.
It occurs as dark-blistish elevations.

C. Treatment.
Surgical.

III. POSTERIOR STAPHYLOMA.

A. Definition.
Bulging at the sclera around the optic nerve. It is associated with high myopia.

B. Treatment.
Surgical.

IV. INJURIES OF THE GLOBE.

Injuries may produce rupture of the eyeball. Injured wounds, if large, may be accompanied by protrusion of the ciliary body and choroid, or by loss of the vitreous.

Infection may follow which may result in panophthalmitis or shrinking of the eyeball. (Enophthalmos.)

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CHAPTER X.

like glaucoma

DISEASES OF THE IRIS.

I. GENERAL STATEMENTS.

infection only

A. Varieties.

1. Acute.
2. Subacute.
3. Chronic.

*4 causes { Rheumatism
Syphilis
some focal infection
Gonorrhea*

B. Causes.

1. Syphilitic.
2. Gonorrheal.
3. Rheumatic.
4. Tuberculosis.
5. Traumatic.
6. Secondary.
7. Idiopathic.
8. Sympathetic.

C. Pathology.

Exudate watery

1. Serous.
2. Purulent.
3. Plastic.

} by process

Exudate mucinous

Pus in exudate - always with ulcer or gonorrhea

II. ACUTE PLASTIC IRITIS.

A. Definition.

An iritic inflammation, characterized by a small pupil, congestion and posterior synechia.

B. Etiology.

Syphilis and rheumatism are the most frequent causes.

Injuries, gout, diabetes, keratitis, scleritis and idiopathic.

CHAPTER X

DISEASES OF THE EYE

I. GENERAL STATEMENTS

A. Varieties

1. Acute
2. Subacute
3. Chronic

B. Causes

1. Syphilitic
2. Gonorrheal
3. Rheumatic
4. Traumatic
5. Infective
6. Toxic
7. Idiopathic
8. Sympathetic

C. Pathology

1. Serous
2. Purulent
3. Plastic

II. ACUTE PLASTIC IRITIS

A. Definition

is the acute inflammation, characterized by a small pupil, congestion and posterior synechia.

B. Etiology

Syphilis and rheumatism are the most frequent causes. Injuries, gout, diabetes, toxicities, and infectious diseases are also causes.

C. Pathology.

Iris swollen and congested.

Exudate collects in the anterior chamber and causes adhesion of the pupillary margin and the posterior surface of iris to the lens capsule.

D. Subjective Symptoms.

Severe pain in temple, eye and forehead, which is worse at night.

Photophobia and lacrimation.

Vision is affected.

Constitutional symptoms may be present.

E. Objective Symptoms.

Lids red and swollen.

Circumcorneal injection.

Cornea hazy and sometimes covered with minute dots on its posterior surface.

Anterior chamber cloudy, with deposits on lower half of the iris, sometimes.

Anterior surface of iris is muddy and dirty colored (compared with the other eye).

Pupil small and hardly reacts to light.

Dilation is irregular (posterior synechia).

Fundus obscured.

F. Course.

Begins as an acute condition, lasting one to six weeks.

Uncommon in children, but may occur at any age. It tends to recur.

G. Prognosis.

Early treatment admits of excellent prognosis.

H. Complications.

Occlusion of pupil by synechia.

Crater-shaped pupil.

Glaucoma, cataract, iridocyclitis, irido-choroiditis and anterior uveitis.

In syphilitic iritis, yellow nodules may occur

C. Pathology.
Iris swollen and congested.
Exudate collects in the anterior chamber and causes adhesion of the pupillary margin and the posterior surface of iris to the lens capsule.
D. Subjective symptoms.
Severe pain in temple, eye and forehead, which is worse at night.
Photophobia and lacrimation.
Vision is affected.
Constitutional symptoms may be present.
E. Objective symptoms.
Iris red and swollen.
Circumferential injection.
Cornea hazy and sometimes covered with minute dots on its posterior surface.
Anterior chamber cloudy, with deposits on lower half of the iris, sometimes.
Anterior surface of iris is hazy and dirty colored (compared with the other eye).
Pupil small and hardly reacts to light.
Dilation is irregular (posterior synechia).
F. Course.
Begins as an acute condition, lasting one to six weeks.
Common in children, but may occur at any age.
It tends to recur.
G. Prognosis.
Early treatment admits of excellent prognosis.
H. Complications.
Ossification of pupil by synechia.
Cataract.
Glaucoma, cataract, iridocyclitis, iritis, choroiditis and anterior uveitis.
In epithelial iris, yellow nodules may occur.

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at the periphery or the pupillary margin.

I. Diagnosis.

By the pain, which is worse at night; muddy iris; posterior synechia; small pupil and ciliary congestion.

J. Differential diagnosis.

See table under glaucoma.

K. Treatment.

Darkened rooms: medical treatment; general and local.

III. CHRONIC PLASTIC IRITIS.

It commonly occurs in elderly rheumatic patients.

The attacks are not severe, but occur often.

Each attack thickens the iris, especially the pupillary margins, causing occlusion, glaucoma and destruction of the eye.

Treatment is medical.

IV. SEROUS IRITIS.

A. Synonyms.

Keratitis punctata posterior; Descemetitis; Aquacapsulitis.

B. Definition.

A serous inflammation, not only of the iris, but including the ciliary body, sometimes the choroid, and the endothelial layer of the cornea.

C. Symptoms.

Slight ciliary congestion.

Deposits of various sizes on the posterior surface of the cornea. These deposits are grouped in triangular manner, base down, in the lower half of the cornea.

The anterior chamber is deep and the pupil constricted.

at the periphery or the pupillary margin.

I. Diagnosis.

By the pain, which is worse at night usually;
tends; posterior synechia; small pupil and ciliary
congestion.

J. Differential diagnosis.

See table under Glaucoma.

K. Treatment.

Darkened room; medical treatment; general
and local.

III. CHRONIC PLEURITIC Iritis.

It commonly occurs in elderly rheumatic patients.
The attacks are not severe, but occur often.
Each attack thickens the iris, especially the
pupillary margin, causing congestion, glaucoma and de-
struction of the eye.
Treatment is medical.

IV. SEROUS Iritis.

A. Synonyms.

Iritis serosa posterior; Iridodermatitis;
Aqueous degeneration.

B. Definition.

A serous inflammation, not only of the iris,
but involving the ciliary body, especially the
choroid, and the endothelial layer of the cornea.

C. Symptoms.

Slight ciliary congestion.
Deposits of various sizes on the posterior
surface of the cornea. These deposits are grouped
in triangular manner, base down, in the lower half
of the cornea.
The anterior chamber is deep and the pupil
contracted.

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at the periphery or the pupillary margin.

I. Diagnosis.

By the pain, which is worse at night; muddy iris; posterior synechia; small pupil and ciliary congestion.

J. Differential diagnosis.

See table under glaucoma.

K. Treatment.

Darkened rooms; medical treatment; general and local.

III. CHRONIC PLASTIC IRITIS.

It commonly occurs in elderly rheumatic patients.

The attacks are not severe, but occur often.

Each attack thickens the iris, especially the pupillary margins, causing occlusion, glaucoma and destruction of the eye.

Treatment is medical.

IV. SEROUS IRITIS.

A. Synonyms.

Keratitis punctata posterior; Descemetitis; Aquacapsulitis.

B. Definition.

A serous inflammation, not only of the iris, but including the ciliary body, sometimes the choroid, and the endothelial layer of the cornea.

C. Symptoms.

Slight ciliary congestion.

Deposits of various sizes on the posterior surface of the cornea. These deposits are grouped in triangular manner, base down, in the lower half of the cornea.

The anterior chamber is deep and the pupil constricted.

at the periphery of the pupillary margin.

I. Diagnosis.
By the pain, which is worse at night; cloudy
iris; posterior synechia; small pupil and ciliary
congestion.

II. Differential diagnosis.
See table under glaucoma.

III. Treatment.
Darkened room; medical treatment; general
and local.

III. CHRONIC PLASTIC IRIIS.
It commonly occurs in elderly rheumatic patients.
The attacks are not severe, but occur often.
Each attack thickens the iris, especially the
pupillary margin, causing constriction, glaucoma and de-
struction of the eye.
Treatment is medical.

IV. CHRONIC IRIIS.
A. Synonyms.
Keratitis plastica posterior; Desmetoides;
Aphacoides.

B. Definition.
A chronic inflammation, not only of the iris,
but involving the ciliary body sometimes the
choroid, and the endothelial layer of the cornea.

C. Symptoms.
Slight ciliary congestion.
Deposits of various sizes on the posterior
surface of the cornea. These deposits are grouped
in triangular manner, base down, in the lower half
of the cornea.
The anterior chamber is deep and the pupil
constricted.

D. Treatment.

Medical: local and general, as for Plastic Iritis.

V. PURULENT IRITIS.

Definition:

A purulent inflammation of the iris, usually caused by perforation; although it may be metastatic.

Hypopyon is present.

It may occur as a complication of purulent conditions of the vitreous and choroid.

VI. TUBERCULAR IRITIS.

A. Forms:

1. Isolated tubercles.

Yellow tumors at the outer margin of the iris.

Increase in size and involve other structures destroying the eye. They also increase in number.

2. Miliary tubercles.

There is an acute iritis, but with little pain.

There are minute elevations covering the surface of the iris.

It eventually destroys the eye.

3. Tuberculosis of the eye is rare.

B. Treatment.

Medical; local and general.

Surgical (enucleation).

VII. INJURIES OF THE IRIS.

A. Blows upon the eyeball may cause a regular or irregular dilatation due to paralysis of the sphincter pupillae.

D. Treatment.
Medically: local and general, as for Phlegm
Iritis.

V. PURULENT IRITIS.
Definition:
A purulent inflammation of the iris, usually caused by
perforation, although it may be metastatic.
Hypopyon is present.
It may occur as a complication of purulent con-
ditions of the vitreous and choroid.
VI. TUBERCULAR IRITIS.
A form:
1. Isolated tubercles.
Yellow tumors at the outer margin of the
iris.
Increase in size and involve other struc-
tures covering the eye. They also increase in
number.
2. Diffuse tubercles.
There is an acute iritis, but with little
pain.
There are minute elevations covering the
surface of the iris.
It eventually destroys the eye.
3. Tuberculous of the eye in situ.
B. Treatment.
Medically: local and general.
(Surgical removal).

VII. INJURIES OF THE EYE.
A. Blow upon the eyeball may cause a rupture of the
lens dislocation due to paralysis of the sphincter
pupillae.

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- B. Perforating wounds: usually accompany injuries of other structures of the eye.

VIII. TUMORS OF THE IRIS.

Rare: they include sarcoma, melanoma and cysts.

IX. CONGENITAL DEFECTS OF THE IRIS.

- A. Irideremia or Aniridia: congenital lack of the iris.
- B. Coloboma of the iris: congenital absence of a part of the iris, usually at the inferior nasal side.
- C. Corectopia: irregularly placed pupil.
- D. Policoria: multiple pupil.
- E. Persistent pupillary membrane: Remnants of the foetal pupillary membrane.

Treatment
injection of atropine and keep there till
all clears up - 1%
apply heat

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Trachoma inf of Lid Contagious
Glaucoma or Tension

B. Perforating wounds: usually accompany injuries of other structures of the eye.

VIII. TUMORS OF THE IRIS.

Rare: they include sarcoma, melanoma and cysts.

IX. CONGENITAL DEFECTS OF THE IRIS.

A. Irregularity or Anisidia: congenital lack of the iris.

B. Coloboma of the iris: congenital absence of a part of the iris, usually at the inferior nasal side.

C. Corectopia: irregularly placed pupil.

D. Polycoria: multiple pupil.

E. Persistent pupillary membrane: Remnants of the foetal pupillary membrane.

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CHAPTER XI.

DISEASES OF THE PUPIL.

I. PARALYTIC MYDRIASIS.

Due to a lesion of the third nerve or its nucleus (locomotor ataxia, disseminated sclerosis, hemorrhage, tumors and injuries), of the optic nerve or tract, and paralysis of the sphincter pupillae.

II. SPASMODIC MYDRIASIS.

Due to high intracranial pressure, mental excitation or spinal irritation.

III. PARALYTIC MYOSIS.

Due to diseases of the superior part of the spinal cord, and tumors or wounds of the cervical sympathetic.

IV. SPASMODIC MYOSIS.

Meningitis; irritation or lesion of the third nerve or its nucleus. Foreign body irritation.

V. ARGYLL-ROBERTSON PUPIL.

Occurs mostly in locomotor ataxia.

Pupil contracts to accommodation but not to light.

VI. HIPPIUS.

Alternate contraction and abnormal dilatation.

II. ACUTE INFLAMMATION OF THE CILIARY BODY.

A. Definition.

Acute inflammation of the ciliary body with exudation.

B. Symptoms.

Pain and tenderness in ciliary region.

Circumferential conjunctivitis.

Some exudate in the vitreous.

Glaucoma may be a complication.

CHAPTER VI.

DISEASES OF THE PUPIL.

- I. PARALYTIC MYDRIASIS.
Due to a lesion of the third nerve or its nucleus (locomotor ataxia, disseminated sclerosis, hemorrhage, tumors and injuries), of the optic nerve or tract, and paralysis of the sphincter pupillae.
- II. SPASMOTIC MYDRIASIS.
Due to high intracranial pressure, mental excitation or spinal irritation.
- III. PARALYTIC MYOSIS.
Due to disease of the superior part of the spinal cord, and tumors or wounds of the cervical sympathetic.
- IV. SPASMOTIC MYOSIS.
Meningitis; irritation or lesion of the third nerve or its nucleus. Foreign body irritation.
- V. ARYTHMIC ROBERTSON PUPIL.
Occurs mostly in locomotor ataxia.
Pupil contracts to accommodation but not to light.
- VI. HIPPIUS.
Alternate contraction and abnormal dilatation.

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CHAPTER XII.

DISEASES OF THE CILIARY BODY.

Rarely affected alone: the iris or choroid or both may be involved.

I. DIFFERENCES BETWEEN CONJUNCTIVAL AND CILIARY INJECTION.

A. CONJUNCTIVAL INJECTION	CIRCUMCORNEAL or CILIARY INJECTION
1. Diseases of the conjunctiva.	1. Diseases of iris, ciliary body, cornea.
2. Mucous or muco-purulent discharge.	2. Lacrimation. No discharge.
3. Most marked in fornix.	3. More marked around cornea.
4. Fades as it approaches cornea.	4. Fades as it approaches fornix.
5. Bright red in color.	5. Pink or lilac in color.
6. Network of vessels.	6. Vessels appear straight.
7. Vessels can be moved with the conjunctiva.	7. Vessels cannot be moved with the conjunctiva.

B. Cyclitis.

Varieties:

1. Plastic.
2. Purulent.
3. Serous.

II. ACUTE PLASTIC CYCLITIS.

A. Definition.

Acute inflammation of the ciliary body with exudation.

B. Symptoms.

Pain and tenderness in ciliary region.
Circumcorneal congestion.
Some opacities in the vitreous.
Glaucoma may be a complication.

CHLOROPHTHALMIA
DISEASE OF THE CILIARY BODY.
Rarely affected alone; the iris or choroid or both may be involved.

I. DIFFERENCE BETWEEN CONJUNCTIVAL AND CILIARY INJECTION.

A. CONJUNCTIVAL INJECTION		B. CILIARY INJECTION	
1. Disease of the conjunctiva.	1. Disease of the ciliary body, cornea.	2. Lachrymation. No discharge.	2. Lachrymation. No discharge.
3. Not marked in form.	3. Not marked in form.	4. Vessels as it approaches fornix.	4. Vessels as it approaches fornix.
5. Bright red in color.	5. Bright red in color.	6. Vessels appear straight.	6. Vessels appear straight.
7. Vessels can be moved with the conjunctiva.	7. Vessels can be moved with the conjunctiva.		

B. CYCLITIS.

1. Plastic.
2. Purulent.
3. Serous.

II. ACUTE PLASTIC CYCLITIS.

A. Definition.
Acute inflammation of the ciliary body with exudation.

B. Symptoms.
Pain and tenderness in ciliary region.
Circumscribed congestion.
Some opacity in the vitreous.
Glaucoma may be a complication.

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If the iris is involved, there are symptoms of iritis.

If choroiditis is present, patches of exudate will be seen, if the vitreous is sufficiently clear.

C. Causes.

Same as iritis.

D. Prognosis.

Bad if disease is severe.

Permanent occlusion of pupil and opacities in the vitreous may result.

III. CHRONIC PLASTIC CYCLITIS.

Definition and Symptoms:

Iris, as a rule, is involved.

The pupil is occluded and there is exudate in the vitreous.

The exudate back of the lens tends to organize, and draw the ciliary body together, and the outer margin of the iris is retracted.

Traumatic, chronic, plastic cyclitis may cause sympathetic ophthalmia.

IV. SEROUS CYCLITIS.

This is the same as serous iritis, as both iris and ciliary body are involved.

V. PURULENT CYCLITIS.

A. Definition.

A purulent inflammation involving all of the uveal tract. Usually follows perforating wounds.

May occur by metastasis from meningitis or diseases of the nose.

B. Treatment.

Medical: local and systemic.

VI. TUMORS OF THE CILIARY BODY.

Rare: sarcoma, tubercles, gummata and cysts.

start of cat
 Limiting membrane of
 lens looses its selectivity
 power + allowing water from
 aqueous get in lens

Lens degenerates with fatty
 finally a hard detritum

III. CHRONIC PLASTIC CYCLITIS.
 Definition and symptoms:
 Iris, iris, is involved.
 The pupil is occluded and there is exudate in the vitreous.
 The exudate back of the lens tends to organize, and then
 the ciliary body together, and the outer margin of the
 iris is retracted.
 Treatment, chronic plastic cyclitis may cause sym-
 ptomatic ophthalmia.

IV. SEROUS CYCLITIS.
 This is the same as serous iritis, as both iris
 and ciliary body are involved.

V. PURULENT CYCLITIS.
 A. Definition.
 A purulent inflammation involving all of the
 uveal tract. Usually follows perforating wounds.
 May occur by metastasis from gonorrhea or
 abscess of the nose.

B. Treatment.
 Medical: local and systemic.

VI. TUMORS OF THE CILIARY BODY.
 Rarest sarcoma, fibrosarcoma, carcinoma and cysts.

CHAPTER XIII.

DISEASES OF THE LENS.

I. CATARACT.

A. Definition.

An opacity of the crystalline lens or its capsule.

B. Varieties.

Senile, traumatic, zonular, polar, posterior and anterior (including capsular).

Progressive (senile and traumatic) and stationary (polar and zonular).

Primary (without any known disease of the eye) and secondary (when associated with some disease of the eye).

II. ANTERIOR POLAR CATARACT.

A. Synonym.

Pyramidal cataract.

B. Definition.

An opacity at the anterior pole of the lens.

C. Subjective symptoms.

Usually little interference with vision.

D. Objective symptoms.

Oblique illumination reveals a small round dense opacity at the anterior pole, often elevated. It extends into the substance of the lens.

An opacity of the cornea often is seen near the center.

E. Etiology.

Congenital or acquired.

It is often due to contact of the lens with the cornea, following perforation of an ulcer either

DISEASES OF THE EYE.

I. CATARACT.

A. Definition.

An opacity of the crystalline lens or its capsule.

B. Varieties.

Senile, traumatic, rheumatic, gonorrheal, posterior and anterior (including capsular).
 Progressive (senile and traumatic) and stationary (gonorrheal and traumatic).
 Primary (without any known disease of the eye) and secondary (when associated with some disease of the eye).

II. ANTERIOR POLAR CATARACT.

A. Synonyms.

Pupillary cataract.

B. Definition.

An opacity at the anterior pole of the lens.

C. Subjective symptoms.

Usually little interference with vision.

D. Objective symptoms.

Diffuse illumination reveals a small round dense opacity at the anterior pole, often elevated. It extends into the substance of the lens. An opacity of the cornea often is seen near the center.

E. Etiology.

(Congenital) or acquired.

It is often due to contact of the lens with the cornea, following perforation of an ulcer of the cornea.

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before or just after birth.

F. Treatment.

None.

III. POSTERIOR POLAR CATARACT.

A. Definition and symptoms.

Similar to anterior Polar cataract.

Occurs in congenital and acquired forms.

1. Congenital form.

Small round opacity, due to contact of the hyloid artery with the lens. It may sometimes be found as a minute dot in normal eyes.

2. Acquired form.

Involved in intra-ocular diseases; often of the choroid.

IV. LAMELLAR ZONULAR CATARACT.

A. Definition.

An opacity, consisting of one or more zones, which surround a clear nucleus and leave the outside clear.

B. Symptoms.

By oblique illumination, streaks are seen running out into the clear cortex.

There is considerable variation in the extent of this type of cataract.

Congenital form may show complete opacity.

A stellate or punctiform type about the nucleus, may occur.

C. Course.

Nearly always remains stationary.

D. Etiology.

Usually congenital, occurring in children who

Before or just after birth.

F. Treatment.

None.

III. POSTERIOR POLAR CATARACT.

A. Definition and symptoms.

Similar to anterior polar cataract.

Occurs in congenital and acquired forms.

1. Congenital form.

Small round opacity, due to contact of the

hyaloid artery with the lens. It may sometimes be

found as a minute dot in normal eyes.

2. Acquired form.

Involved in intra-capsular diseases, often

of the choroid.

IV. LAMBLER'S CORNEAL CATARACT.

A. Definition.

An opacity, consisting of one or more zones,

which surround a clear nucleus and leave the periphery

clear.

B. Symptoms.

By oblique illumination, streaks are seen

running out into the clear cornea.

There is considerable variation in the extent

of this type of cataract.

Congenital form may show conical opacity.

A satellite or punctiform type about the nucleus

may occur.

C. Course.

Nearly always remains stationary.

D. Etiology.

Usually congenital, occurring in children.

were rachitic or had convulsions in infancy. There is an apparent hereditary tendency.

E. Treatment.

Surgical.

V. SENILE CATARACT.

A. Etiology.

Most cataracts of this type occur in the aged. There appear to be no causes, although constitutional diseases favor their development.

B. Pathology.

Irregular shrinking of fibres, and collection of fluid in the spaces thus formed, during nucleus formation. The fibres degenerate and the fluid coagulates causing opacities.

C. Subjective symptoms.

Dark spots, streaks and flashes of light, blurred vision, diplopia.

No pain.

Eye-strain.

Sometimes first indication, is ability to see without glasses, due to the swelling of the lens increasing its refracting power.

D. Objective symptoms.

Stages:

1. Incipient Cataract.

Opacity at the center of the lens (nuclear) or radiating streaks (cortical).

Seen best by oblique illumination, where they appear white, or by the ophthalmoscope, when they appear black against a red background.

2. Immature Cataract.

Ripening process.

Opacity becomes more extensive and there is

were present or had convulsions in infancy. There is an apparent hereditary tendency.

E. Treatment.
Surgical.

V. SENILE CATARACT.

A. Etiology.
Most instances of this type occur in the aged. There appear to be no causes, although constitutional diseases favor their development.

B. Pathology.
Irregular thickening of fibers, and collection of fluid in the spaces thus formed, during maturation. The fibers degenerate and the fluid coagulates causing opacities.

C. Subjective symptoms.
Dark spots, streaks and flashes of light, blurred vision, diplopia, no pain.
Eyes retain function, is ability to see without glasses, due to the swelling of the lens increasing its refractive power.

D. Objective symptoms.
Cataract.

1. Incipient Cataract.
Opacity at the center of the lens (nucleus) or radiating streaks (cortical).
Seen best by oblique illumination, when they appear white, or by the ophthalmoscope, when they appear black against a red background.

2. Mature Cataract.
Opa-
Opacity becomes more extensive and there is

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an increased swelling of the lens.

Opacity can be seen in day-light.

3. Mature Cataract.

Ripe: fully opaque.

Returns to normal size.

4. Hypermature Cataract.

Cortex softens, and may become fluid, with the nucleus floating in it (Morgagnian Cataract), or the lens may become flat and may calcify.

5. Course.

Progress slow.

May be years before maturity is reached, or it may become stationary.

Both eyes may or may not be affected at once.

6. Prognosis.

An eye free from disease, with the anterior chamber of normal depth, and a freely reacting pupil; a normal tension and projection good, when the cataract is ripe, will admit of a good prognosis for good vision after operation.

7. Treatment.

Surgical.

II. DISLOCATION OF THE LENS.

A. Definition.

There may occur partial (subluxation) or complete (luxation) dislocation of the lens by rupture of the suspensory ligaments.

B. Etiology and symptoms.

Traumatic, congenital and secondary.

1. Dislocation occurs upward, downward, backward or sideways into the vitreous chamber.

an increased swelling of the lens.
Opacity can be seen in day-light.

3. Mature Cataract.
Ripe; fully opaque.
Returns to normal size.

4. Hypomature Cataract.
Cortex softens, and may become fluid, with
the nucleus floating in it (Morgagnian Cataract),
or the lens may become flat and may calcify.

5. Course.
Progress slow.
May be years before maturity is reached, or
it may become stationary.
Both eyes may or may not be affected at
once.

6. Prognosis.
As the lens free from disease, with the anterior
chamber of normal depth, and a freely reacting
pupil; a normal tension and good vision, when
the cataract is removed, will result of a good prog-
nosis for good vision after operation.

7. Treatment.
Surgical.

II. DISLOCATION OF THE LENS.

A. Definition.
There may occur partial (subluxation) or com-
plete (luxation) dislocation of the lens by rupture
of the suspensory ligaments.

B. Etiology and symptoms.
Traumatic, congenital and secondary.

1. Dislocation occurs upward, downward, backward or
sideways into the vitreous chamber.

With the ophthalmoscope, one may see a curved, black line in the pupil.
Eye movements shake the lens and cause tremulous iris.

2. The lens may be dislocated partly through the pupil or entirely into the anterior chamber.
Difficult to see.
Usually followed by glaucoma.
3. The lens may be dislocated through a wound in the sclera and lie under the conjunctiva.
4. A dislocated lens is liable to cause glaucoma.

C. Treatment.

Cataract operation, if inflammation or glaucoma is threatened, or present.

III. CONGENITAL LENS AFFECTIONS.

A. Coloboma.

Rare: portion of the lens is absent.

B. Lenticonus Posterior.

Rare: bulging of the posterior surface.

IV. APHAKIA.

A. Definition.

Absence of the crystalline lens.

B. Causes.

1. Congenital.
2. Result of cataract extraction.
3. Result of sub-luxation.

C. Mechanical Treatment.

Distance vision is possible only with the aid of a convex lens. If the eye were emmetropic before

- With the ophthalmoscope, one may see a curved black line in the pupil. The movement of the lens and cause of the same.
2. The lens may be dislocated partly through the pupil or entirely into the anterior chamber. Usually followed by blindness.
 3. The lens may be dislocated through a wound in the sclera and lie under the conjunctiva.
 4. A dislocated lens is liable to cause glaucoma.

C. Treatment.
Cataract operation, if inflammation or glaucoma is threatened, or present.

III. CONGENITAL LENS AFFECTIONS.

- A. Coloboma.
Rare; portion of the lens is absent.
- B. Lenticonia Posterior.
Rare; bulging of the posterior surface.

IV. APHAKIA.

- A. Definition.
Absence of the crystalline lens.
- B. Causes.
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 3. Result of sub-luxation.
- C. Mechanical Treatment.
Distance vision is possible only with the aid of a convex lens. If the eye were emmetropic before.

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the operation, the hyperopia afterward would amount to an average of from 1.0D to 1.2D. If hyperopia was present previously, it is added to that which is acquired by the operation, and makes it proportionately greater. If, on the other hand, the eye is myopic before the operation, the hyperopia after cataract operation, is that much less. Extremely myopic eyes may actually become emmetropic or even remain myopic.

The aphakic eye is destitute of accommodation, hence, it follows that by single glasses, the latter is corrected for a single distance only. The eye needs at least two pairs of glasses; one for distance and the other for close work.

Owing to the alteration in the corneal curvature, produced by the contraction of the operation scar, usually a considerable amount of astigmatia (from 1D to 4D) against the rule, is produced by the cataract operation. This usually diminishes during the first few months so that the final correction by glasses may be materially different from the first correction. Since the adoption of the scleral incision, this astigmatism is not so marked.

[Note: As a good practical rule, glasses should not be prescribed for a month or more after the crystalline lens has been removed.]

the operation, the hyperopia afterward would amount to an average of from 1.00 to 1.50. If hyperopia was present previously, it is added to that which is caused by the operation, and makes it proportionately greater. If, on the other hand, the eye is myopic before the operation, the hyperopia after operation, is that much less. Extremely myopic eyes may actually become emmetropic or even remain myopic.

The aphakic eye is destitute of accommodation, hence, it follows that by single glasses, the latter is corrected for a single distance only. The eye needs at least two pairs of glasses; one for distance and the other for close work.

There is the alteration in the corneal curvature, produced by the contraction of the operation scar, usually a considerable amount of astigmatism (from 1.00 to 4.00) against the rule, is produced by the operation. This usually diminishes during the first few months so that the final correction by glasses may be materially different from the first correction. Since the adoption of the scleral incision, this astigmatism is not so marked.

[Note: As a good practical rule, glasses should not be prescribed for a month or more after the myasthenia lens has been removed.]

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CHAPTER XIV.

DISEASES OF THE VITREOUS.

I. OPACITIES.

A. Fixed Opacities.

Remains of the hyaloid artery in its canal.

Connective tissue bands, either congenital, or resulting from organization of inflammatory exudate.

B. Floating Opacities.

Dust-like (syphilis).

Masses, bands etc. from cyclitis, choroiditis, retinitis, hemorrhages, injury and degeneration of the vitreous.

The degenerative changes in the vitreous occur in high myopia, constitutional weakening diseases, old age, systemic disease, menstrual disorders; or they may be idiopathic.

C. Muscae Volitantes.

Subjective floating opacities.

They are shadows of vitreous cells thrown on the retina.

D. Sinchysis scintillans.

Cholestrin crystals, or scales in the vitreous, which reflect the light as brilliant, floating spots.

II. SUPPURATIVE INFLAMMATION OF THE VITREOUS.

A. Synonym.

Purulent hyalitis.

B. Etiology.

Pus in the vitreous due to infection from wounds, or by metastases from meningitis, ear and nose diseases, or general infectious diseases, in-

CHAPTER XIV.

DISEASES OF THE VITREOUS.

I. OPACITIES.

A. Fixed Opacities.

Remains of the hyaloid artery in the canal.
Connective tissue bands, either condensed,
or resulting from organization of inflammatory ex-
udate.

B. Floating Opacities.

Druse-like (symplicic).
Masses, bands etc. from cystitis, choroiditis,
retinitis, hemorrhages, injury and degeneration of
the vitreous.
The degenerative changes in the vitreous occur
in hyperopia, congenital weakening diseases,
old age, chronic diseases, muscular disorders; or
they may be idiopathic.

C. Lenses Volvulus.

Subjective floating opacities.
They are shadows of vitreous cells thrown on
the retina.

D. Synchysis scintillans.

Cholesterol crystals, or scales in the vitreous,
one, which reflect the light as brilliant, floating
spots.

II. SUPPURATIVE INFLAMMATION OF THE VITREOUS.

A. Symplocosis.

Purulent hyalitis.

B. Ectopia.

Due in the vitreous due to infection from
wounds, or by metastases from meningitis, ear and
nose diseases, or general infectious diseases, in

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inflammations of the uveal tract and from debilitating diseases.

C. Symptoms.

Lens, aqueous and cornea are clear.

There is a yellow reflex back of the lens.

In advanced cases the eye is soft.

Severe cases are known as panophthalmitis or abscess of the eye.

D. Treatment.

Surgical.

E. Subjective Symptoms.

There may occur some decrease in vision, with contraction of visual fields, headache and blindness.

F. Objective Symptoms.

Arteries very narrow, disc extremely pale.

A shrunken form occurs after retinal disease, causing atrophy.

The vessels are very narrow and bordered by white lines of connective tissue or the vessels may appear empty and threadlike.

G. Treatment.

Medical.

II. HYPEREMIA OF THE RETINA.

A. Cause.

Excessive light and heat.

B. Objective Symptoms.

When slight, the disc is slightly redder than normal with a slight striation of its margins.

When marked, there may be present, retinal or optic nerve inflammation.

C. Treatment.

Medical and mechanical.

Flammations of the vessel space and from debility
Hæmorrhoids.

C. Symptoms.

Itching, redness and cornea are clear.
There is a yellow reflex back of the iris.
In advanced cases the eye is soft.
Severe cases are known as panophthalmitis or
abscess of the eye.

D. Treatment.

Surgical.

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CHAPTER XV.

DISEASES OF THE RETINA .

I. ANEMIA OF THE RETINA.

It may be an ocular symptom of a general condition, or it may be local.

A. Etiology.

Embolism, compression, cardiac and vascular diseases and poisons.

B. Subjective Symptoms.

There may occur some decrease in vision, with contraction of visual fields, headache and blindness.

C. Objective Symptoms.

Arteries very narrow, disc extremely pale.

A chronic form occurs after retinal disease, causing atrophy.

The vessels are very narrow and bordered by white lines of connective tissue or the vessels may appear empty and threadlike.

D. Treatment.

Medical.

II. HYPEREMIA OF THE RETINA.

A. Causes.

Asthenopia, excessive light and heat.

B. Objective Symptoms.

When slight, the disc is slightly redder than normal, with a slight striation of its margins.

When marked, there may be present, retinal or other ocular inflammation.

C. Treatment.

Medical and mechanical.

CHAPTER IV.

DISEASES OF THE RETINA.

I. ANEMIA OF THE RETINA.

It may be an ocular symptom of a general condition, or it may be local.

A. Etiology.

Imbriation, compression, cardiac and vascular diseases and poisons.

B. Subjective Symptoms.

There may occur some decrease in vision, with contraction of visual fields, headache and blindness.

C. Objective Symptoms.

Arteries very narrow, also extremely pale. A chronic form occurs after retinal disease, causing atrophy. The vessels are very narrow and bordered by white lines of connective tissue on the vessels may appear empty and threadlike.

D. Treatment.

Medical.

II. HYPERTONIA OF THE RETINA.

A. Causes.

Exophthalmos, excessive light and heat.

B. Objective Symptoms.

When slight, the disc is slightly redder than normal, with a slight elevation of its margin. When marked, there may be present, retinal or other ocular inflammation.

C. Treatment.

Medical and mechanical.

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III. SIMPLE RETINITIS.

A. Synonym.

Retinitis in general.

B. Definition.

Inflammation of the retina.

C. Etiology.

Sometimes obscure.

Commonly occurs in constitutional diseases, such as malaria, leukemia, anemia, arterio-sclerosis, etc.

D. Subjective Symptoms.

Impaired vision, blurring, flashes of light.

Sometimes photophobia and metamorphosia are present.

E. Objective Symptoms.

Retina may be only slightly affected, with dilated veins, tortuous vessels and few hemorrhages.

Severe cases show a cloudy fundus, dilated and distorted vessels deep in the swollen retina, flame-like hemorrhages and blurring of the outline of the disc.

The disease may persist for months and may occur in one or both eyes.

F. Treatment.

Medical.

IV. HEMORRHAGIC RETINITIS.

This disease is a form of simple retinitis with marked hemorrhages. Thrombosis of the retinal veins, or hemorrhages between the retina and the choroid, may occur.

The disease is most common in elderly people suffering from arterio-sclerosis.

III. SIMPLE RETINITIS.

A. Synonyms.

Retinitis in general.

B. Definition.

Inflammation of the retina.

C. Etiology.

Sometimes obscure.

Commonly occurs in constitutional diseases,

such as malaria, leukemia, anemia, arterio-sclerosis, etc.

D. Subjective symptoms.

Impaired vision, blurring, flashes of light, sometimes photophobia and metamorphosis are present.

E. Objective symptoms.

Retina may be only slightly affected, with dilated veins, tortuous vessels and few hemorrhages. Severe cases show a cloudy fundus, dilated and distorted vessels due to the swollen retina, flame-like hemorrhages and tearing of the outline of the disc.

The disease may persist for months and may occur in one or both eyes.

F. Treatment.

Medical.

IV. HEMORRHAGIC RETINITIS.

This disease is a form of simple retinitis with marked hemorrhages. The basis of the retina, veins, or hemorrhages between the retina and the choroid, are common.

The disease is most common in elderly people, but may occur at any age.

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V. ALBUMINURIC RETINITIS.

A. Definition.

A retinitis occurring with acute or chronic nephritis.

Both eyes are usually affected.

B. Etiology.

Nephritis and Bright's disease of pregnancy.

C. Subjective Symptoms.

Interference with vision often very slight.

Nephritic patients are subject to attacks of urœmic, temporary blindness with or without retinitis.

D. Objective Symptoms.

There are signs of simple retinitis, with shining white patches throughout the fundus.

There is a peculiar stellate figure formed by radiating lines of glistening white dots around the macula.

E. Pathology.

The white patches are areas of fatty degenerations of retinal elements, and exudates.

F. Prognosis.

When due to chronic nephritis, it is a late manifestation, and the patient rarely lives two years after the eye lesion has appeared.

G. Treatment.

Medical.

VI. SYPHILITIC RETINITIS.

A. Etiology.

Congenital syphilis and acquired syphilis in the second and third stages.

V. ALBUMINURIC RETINITIS.

- A. Definition.
A retinitis occurring with acute or chronic nephritis.
Both eyes are usually affected.
- B. Etiology.
Nephritis and Bright's disease of pregnancy.
- C. Subjective symptoms.
Interference with vision often very slight.
Nephritic patients are subject to attacks of
transient, temporary blindness with or without retin-
itis.
- D. Objective symptoms.
There are signs of simple retinitis, with
pale patches throughout the fundus.
There is a peculiar stellate figure formed by
radiating lines of glimmering white dots around the
macula.
- E. Pathology.
The white patches are areas of fatty degener-
ation of retinal elements, and exudates.
- F. Prognosis.
When due to chronic nephritis, it is a late
manifestation, and the patient rarely lives two
years after the eye lesion has appeared.
- G. Treatment.
Medical.

VI. SYMPLECTIC RETINITIS.

- A. Etiology.
Congenital syphilis and acquired syphilis in
the second and third stages.

B. Subjective Symptoms.

Same as for other types of retinitis.

C. Objective Symptoms.

Dust-like opacities in the retina.

There is a bluish-gray haze over the retina,
around the disc and macula.

Streaks of white exudate along the vessels.

D. Course.

Chronic.

Leads to atrophy of the optic nerve and
choroiditis.

E. Treatment.

Medical.

VII. RETINITIS PIGMENTOSA.

A. Definition.

A disease of the retina beginning in youth
and prolonged for years.

B. Subjective Symptoms.

Nyctalopia (night-blindness or loss of vision
in subdued light)

Field of vision gradually narrows.

C. Objective Symptoms.

Masses of retinal pigment, irregular in shape,
but with branching projections.

First appear at the periphery, later approach
the disc.

The nerve and retina become atrophic.

Vessels reduced in caliber.

D. Course.

Years.

Hereditary tendency.

Consanguinity of parents involved.

B. Subjective Symptoms.
Same as for other types of retinitis.

C. Objective Symptoms.
Just-like opacities in the retina.
There is a bluish-gray haze over the retina,
around the disc and macula.
Streaks of white exudate along the vessels.

D. Course.
Chronic.
Leads to atrophy of the optic nerve and
choroiditis.

E. Treatment.
Medical.

VII. RETINITIS PIGMENTOSA.

A. Definition.
A disease of the retina beginning in youth
and prolonged for years.

B. Subjective Symptoms.
Nyctalopia (night-blindness or loss of vision
in subdued light)
Field of vision gradually narrowed.

C. Objective Symptoms.
Masses of retinal pigment, irregular in shape,
but with branching projections,
first appear at the periphery, later approach
the disc.
The nerve and retina become atrophic.
Vessels reduced in caliber.

D. Course.
Years.
Hereditary tendency.
Concomitantly of parents involved.

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VIII. EMBOLISM OF THE CENTRAL RETINAL ARTERY.

A. Definition.

Plugging of the artery, or more rarely, a single branch.

B. Etiology.

Heart lesions.

Obliterating endarteritis of retinal vessels.

C. Subjective Symptoms.

Sudden monocular blindness.

No pain or other symptoms.

D. Objective Symptoms.

Retina soon becomes foggy (oedema)

Cherry-red spot at the macula.

Arteries small.

Little blood in the veins.

If circulation is restored, blood appears in broken columns.

Sometimes central vision remains.

Atrophy of the nerve and retina is the usual result.

E. Treatment.

Surgical (Massage).

IX. DETACHMENT OF THE RETINA.

A. Synonym.

Ablatio Retinae.

B. Definition.

Separation of the retina from the choroid, leaving the retinal pigment attached to the choroid.

C. Etiology.

Extravasation of blood or serum.

Exudate or new-growth.

Changes in the vitreous.

VIII. LESIONS OF THE CENTRAL RETINAL ARTERY.

A. Definition.

Plugging of the artery, or more rarely, a single branch.

B. Etiology.

Heart lesions.
Obliterating endarteritis of retinal vessels.

C. Subjective symptoms.

Sudden monocular blindness.
No pain or other symptoms.

D. Objective symptoms.

Retina soon becomes foggy (edema).
Cherry-red spot at the macula.
Arteries small.
Little blood in the veins.
If circulation is restored, blood appears in broken columns.
Sometimes central vision remains.
Atrophy of the nerve and retina is the usual result.

E. Treatment.

Surgical (Lassus).

IX. DETACHMENT OF THE RETINA.

A. Synonym.

Rhegmatogenous Detachment.

B. Definition.

Separation of the retina from the choroid, leaving the retinal pigment attached to the choroid.

C. Etiology.

Extravasation of blood or serum.
Rupture of new growth.
Changes in the vitreous.

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Ordinary forms are a complication of high myopia.

Traumatism is a frequent cause.

D. Subjective Symptoms.

Poor vision and defect in visual field corresponding to the detachment.

E. Objective Symptoms.

Opacities may be floating in the vitreous.

Retina appears as a wavy, grayish, or greenish-white membrane over which the dark-red retinal vessels run, disappearing abruptly to reappear again. They run a tortuous course.

Retina floats about with movements of the eye; and may be torn.

Tension of the eye reduced.

Cases are recognized showing flat detachment (hard to see) and steep (most common) detachment.

F. Prognosis.

If complicating myopia, it gets worse, until vision is lost.

If it follows injury, it may recover, or remain stationary.

G. Treatment.

Medical and rest.

X. GLIOMA OF THE RETINA.

A. Definition.

A malignant tumor occurring in early childhood, usually before five years of age.

B. Pathology.

It springs from the molecular layers of the retina. It consists of blood-vessels, small round cells, cells with processes and a small amount of stroma.

Ordinary forms are a complication of high

myopia.

Tramission is a frequent cause.

D. Subjective symptoms.

Poor vision and defect in visual field corresponding to the detachment.

E. Objective symptoms.

Opacities may be floating in the vitreous. Retina appears as a wavy, grayish, or greenish-white membrane over which the dark-red retinal vessels run, disappearing sharply to reappear again. They run a tortuous course. Retina floats about with movements of the eye; and may be torn.

Formation of the eye reduced. Cases are recognized showing first detachment (hard to see) and steep (most common) detachment.

F. Prognosis.

If complicating myopia, it gets worse, until vision is lost. If it follows injury, it may recover, or remain stationary.

G. Treatment.

Medical and rest.

X. BLINDNESS OF THE RETINA.

A. Definition.

A malignant tumor occurring in early childhood, usually before five years of age.

B. Pathology.

It springs from the molecular layer of the retina. It consists of blood-vessels, small round cells with processes and a small amount of stroma.

C. Subjective Symptoms.

The eye is blind.

D. Objective Symptoms.

1st Stage.

Shining white or yellowish reflex ("amaurotic cat's eye"). A few blood vessels are seen on the mass.

2nd Stage. (Glaucomatous).

Eyeball becomes hard because of the increasing size of the tumor filling the eyeball.

3rd Stage.

New growth bursts through the eyeball either forward or backward.

4th Stage.

Metastatic growths in other organs. The other eye may become affected. The child dies of exhaustion or cerebral complications. Other children in the same family may be affected.

E. Differential Diagnosis.

<u>Glioma</u>	<u>Pseudoglioma or Purulent Choroiditis</u>
Occurs in early childhood.	Occurs at any age.
No history of injury or meningitis.	Follows injury or meningitis.
Tumor often well defined, with rest of vitreous clear.	Vitreous completely filled with yellowish mass.
Anterior chamber shallow.	Anterior chamber shallow.
Tension increased.	Tension decreased.
	Iris bulges at pupillary margin.
No inflammatory signs.	Early inflammatory signs.

F. Treatment.

Surgical. Early and complete enucleation of the orbit.

C. Subjective symptoms.
The eye is blind.

D. Objective symptoms.
1st Stage.
Shining white or yellowish reflex ("mammoth eye"). A few blood vessels are seen on the mass.

2nd Stage (Glaucomatous).
Eyeball becomes hard because of the increasing size of the tumor filling the eyeball.

3rd Stage.
New growth bursts through the eyeball either forward or backward.

4th Stage.
Metastatic growths in other organs. The other eye may become affected. The child dies of exhaustion or cerebral complications. Other children in the same family may be affected.

E. Differential Diagnosis.

Choroiditis	Glioma
Occurs at any age.	Occurs in early childhood.
No history of injury or toxic influence.	No history of injury or toxic influence.
Tumor often well defined with yellowish mass.	Tumor often well defined with rest of vitreous clear.
Anterior chamber shallow.	Anterior chamber shallow.
Tension decreased.	Tension increased.
Its bulges at periphery.	Its bulges at periphery.
margin.	margin.
Early inflammatory signs.	No inflammatory signs.

F. Treatment.
Surgical. Early and complete enucleation of the orbit.

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XI. OPAQUE NERVE FIBERS.

Definition.

A congenital condition, in which may be seen brush-like, glistening, white patches around the optic nerve. They are composed of nerve fibers that have not lost their medullary sheaths. It is not pathological.

It is a normal condition of the rabbit's eye.

XII. INJURIES OF THE RETINA.

Commotio Retinae (Oedema).

Arises from contusions. There are defective vision and gray infiltration, especially in the macular region.

XIII. OTHER FORMS OF RETINAL DISEASE.

A. Snow Blindness.

From exposure to brilliant light. May cause retinitis, pigment changes, central scotoma and macular changes.

B. Retinitis Circinata.

White streak of exudate encircling the macula.

C. Retinitis Proliferans.

Masses of organized connective tissue in the vitreous. Probably due to hemorrhages.

D. Angoid Streaks.

Black or brown streaks in the deeper layers. Probably due to hemorrhages.

E. Retinitis Striata.

White streaks of fibrous tissue in the retina.

F. Amaurotic Family Idiocy.

In infancy there are changes in the macula. Hazy appearance in macular region with a red spot in the center. Probably due to degeneration of the

XI. OPTIC NERVE FIBERS.

Definition.
A congenital condition, in which may be seen brush-like, elongating, white patches around the optic nerve. They are composed of nerve fibers that have not lost their medullary sheaths. It is not pathological. It is a normal condition of the rabbit's eye.

XII. INJURIES OF THE RETINA.

Conjunctive Retinitis (Oedema).
Arises from contusions. There are defective vision and gray infiltration, especially in the macular region.

XIII. OTHER FORMS OF RETINAL DISEASE.

- A. Snow Blindness.
From exposure to brilliant light. May cause retinitis, pigment changes, central oedema and macular changes.
- B. Retinitis Circinata.
White streaks radiating outwards encircling the macula.
- C. Retinitis Proliferans.
Masses of organized connective tissue in the vitreous. Probably due to hemorrhages.
- D. Angoid Streaks.
Black or brown streaks in the deeper layers. Probably due to hemorrhages.
- E. Retinitis Striata.
White streaks of fibrous tissue in the retina.
- F. Hemorrhagic Family Idiocy.
In infancy there are changes in the macula. Heavy appearance in macular region with a red spot in the center. Probably due to degeneration of the

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ganglion cells, dependent upon the cessation of the development of the nervous system. Jews more susceptible to the disease. Children die in a year or two.

XIV. AMBLYOPIA.

A. Definition.

Functional blindness of the retina. There are no discoverable refractive errors or lesions.

B. Forms.

1. Congenital.

Associated with errors of refraction, notably hyperopia and astigmia. A squinting eye may be amblyopic, probably from non-use (amblyopia ex anopsia).

2. Hysterical.

One eye only affected as a rule. Partial or total. Field of vision contracted. Color fields reversed as to size.

3. Simulated.

Malingering.

4. Toxic.

Occurs in uraemia, malaria, drug, tobacco and alcohol poisonings. Lesions, particularly of the nerve may develop.

ganglion cells, dependent upon the cessation of the development of the nervous system. Less more susceptible to the disease. Differs in a year or two.

XIV. AMBLYOPIA

A. Definition.

Functional blindness of the retina. There are no discoverable reflexive errors or lesions.

B. Forms.

1. Congenital.

Associated with errors of refraction, notably hyperopia and astigmatism. A squinting eye may be amblyopic, probably from non-use (amblyopia ex anopsia).

2. Hysterical.

One eye only affected as a rule. Partial or total. Field of vision contracted. Color fields reversed as to size.

3. Stimulated.

Malingering.

4. Toxic.

Occurs in ur毒症, malaria, drug, tobacco and alcohol poisonings. Lesions, particularly of the nerve may develop.

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CHAPTER XVI.

DISEASES OF THE CHOROID.

Varieties.

Of inflammation; exudative, serous and suppurative choroiditis and sclerochoroiditis posterior.

I. EXUDATIVE CHOROIDITIS.

A. Definition.

An inflammation of the choroid characterized by patches of plastic inflammation, followed by atrophy.

B. Pathology.

Exudate consists of round cells in the choroid and external retinal layers. It becomes organized, producing atrophy and pigment disturbances.

C. Etiology.

Syphilis most common, nutritional disorders; and rarely, tuberculosis. It may be idiopathic.

D. Varieties.

1. Central.

Occurs in syphilis, senility and myopia.

2. Disseminated. (Tay's Choroiditis)

Chronic. Scattered patches.

3. Diffuse.

Due to syphilis. Retina involved.

4. Isolated.

Not due to syphilis. Runs a short course. Result of over-exertion or may be idiopathic. Isolated patches.

E. Subjective Symptoms.

CHAPTER XVI.

DISEASES OF THE CHOROID.

Varieties.
Of inflammation; exudative, serous and suppurative
choroiditis and sclerochoroiditis posterior.

I. EXUDATIVE CHOROIDITIS.

A. Definition.
An inflammation of the choroid characterized
by patches of plastic inflammation, followed by
atrophy.

B. Pathology.
Exudate consists of round cells in the choroid
and external retinal layers. It becomes organized,
producing atrophy and pigment disturbances.

C. Etiology.
Syphilis most common, nutritional disorders;
and rarely tuberculosis. It may be idiopathic.

D. Varieties.

1. Central.
Occurs in syphilis, scurvy and myopia.

2. Disseminated. (Joy's choroiditis)
Chronic. Scattered patches.

3. Diffuse.
Due to syphilis. Retina involved.

4. Isolated.
Not due to syphilis. Runs a short course.
Result of over-excitation or may be idiopathic.

E. Subjective Symptoms.

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Gradual loss of vision, although in some cases, sight remains good. Visual field contracted. Scotomata sometimes present.

F. Objective Symptoms.

1. Recent cases.

Show irregular, hazy, white or yellow patches. Isolated hemorrhages may occur.

2. Atrophic stage.

Masses of pigment, or white patches, which may or may not be ringed with pigment. Optic nerve atrophy, or opacities of the lens or vitreous, may be complications.

G. Treatment.

Medical.

II. SEROUS CHOROIDITIS.

A complication of Serous Iritis (q.v.)

III. SUPPURATIVE CHOROIDITIS.

A. Definition.

Practically the same as suppurative inflammation of the vitreous (q.v.). All structures of the eye may become involved and the eye destroyed.

B. Treatment.

Surgical.

IV. SCLEROCHOROIDITIS POSTERIOR.

A slow process of atrophy of the choroid around the optic nerve, usually toward the macula. A complication of myopia. Associated with posterior scleral staphyloma.

V. TUMORS OF THE CHOROID.

Secondary carcinoma, gumma, tubercles and sarcoma, (rare).

Gradual loss of vision, although in some cases, sight remains good. Visual field contracted. Scotomata sometimes present.

F. Objective Symptoms.

1. In some cases, show irregular, hazy, white or yellow patches. Isolated hemorrhages may occur.
2. Atrophic stage. Areas of pigment, or white patches, which may or may not be ringed with pigment. Optic nerve atrophy or opacities of the lens or vitreous may be complications.

G. Treatment.

Medical.

- II. SERIOUS CHOROIDITIS.
A combination of serum therapy (p.v.).

III. SUPPURATIVE CHOROIDITIS.

A. Definition.

Practically the same as suppurative inflammation of the vitreous (p.v.). All structures of the eye may become involved and the eye destroyed.

B. Treatment.

Surgical.

IV. RETROCHOROIDITIS POSTERIOR.

A slow process of atrophy of the choroid around the optic nerve, usually toward the macula. A complication of myopia. Associated with posterior lateral atrophies.

V. TUMORS OF THE CHOROID.

Secondary carcinoma, sarcoma, tubercles and melanoma (rare).

VI. SARCOMA OF THE CHOROID.

A. Pathology.

Most common is melanosarcoma.

B. Symptoms.

1st Stage.

Blurred vision. Tumor projects into fundus carrying retina with it. Vessels can be traced over its surface without a break. Other than retinal vessels seen.

2nd Stage.

Eyeball is hard and painful and sight is lost.

3rd Stage.

Neighboring parts involved. It breaks through the eyeball or extends back through the optic nerve.

4th Stage.

Metastatic growths.

C. Diagnosis.

A rounded tumor, springing from the choroid, carrying the retina with it. The retinal vessels are unbroken over the surface of it, and there is increased tension.

D. Prognosis.

Grave.

E. Treatment.

Enucleation.

VII. INJURIES OF THE CHOROID.

These include perforation by wounds, and ruptures by contusion. The latter show a curved white line of the sclera. They are bordered by pigment, and usually they are around the optic nerve. No treatment possible.

VI. SARCOMA OF THE CHOROID.

A. Pathology.

Most common is melanoblastic.

B. Symptoms.

1st Stage.

Blurred vision. Tumor projects into fundus carrying retina with it. Vessels can be traced over its surface without a break. Other than retinal vessels seen.

2nd Stage.

eyeball is hard and painful and sight is lost.

3rd Stage.

Neighboring parts involved. It breaks through the eyeball or extends back through the optic nerve.

4th Stage.

Metastatic growths.

C. Diagnosis.

A rounded tumor, springing from the choroid, carrying the retina with it. The retinal vessels are unbroken over the surface of it, and there is increased tension.

D. Prognosis.

Grave.

E. Treatment.

Enucleation.

VII. INJURIES OF THE CHOROID.

These include perforation by wounds, and lacerations by contusion. The latter show a curved white line of the sclera. They are bordered by pigment, and usually they are around the optic nerve. No treatment possible.

VIII. CONGENITAL DEFECTS OF THE CHOROID.

Coloboma.

Failure of the embryonic choroidal fissure to close. There is an exposed area of the sclera from the optic nerve toward the ciliary body.

1. Etiology. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

2. Pathology. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

3. Symptoms. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

4. Diagnosis. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

5. Prognosis. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

6. Treatment. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

7. Prevention. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

8. Pathology. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

9. Symptoms. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

10. Diagnosis. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

11. Prognosis. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

12. Treatment. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

13. Prevention. Defective closure of the embryonic choroidal fissure, which is followed by degeneration and atrophy of the choroid.

VIII. CONSTITUTIONAL DEFECTS OF THE EYE.

Coloboma. Defect of the embryonic choroidal tissue is called coloboma. There is an exposed area of the sclera from the optic nerve toward the ciliary body.

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CHAPTER XVII.

DISEASES OF THE OPTIC NERVE.

I. OPTIC NEURITIS.

A. Synonym.

Choked disc, Papillitis.

B. Definition.

Inflammation of the optic nerve-head, characterized by congestion and swelling of the disc.

C. Etiology.

Brain tumors, nephritis, syphilis, anemia, rheumatism, vascular diseases, poisons, infectious diseases, orbital diseases, and sinus diseases.

D. Pathology.

White cell infiltration. It is believed that a distention of the optic nerve sheath is present.

E. Subjective Symptoms.

Defective vision. A peculiarity is, that severe cases may still have good vision.

F. Objective Symptoms.

Disc is congested or white in color. Edges streaked and blurred. Swelling of the disc. Veins distended and tortuous. Arteries small. May be hemorrhages. Field of vision may be defective. There may be a general retinitis. Both eyes are usually involved. In "choked disc," so called, there is great oedema of the nerve, dilated vessels and hemorrhages.

G. Course.

Months. It may clear up with no after-effects, or it may be followed by atrophy.

H. Treatment.

Medical.

CHAPTER XVII.

DISEASES OF THE OPTIC NERVE.

I. OPTIC NEURITIS.

A. Synonymy.

Oboked disc, Papillitis.

B. Definition.

Inflammation of the optic nerve-head, characterized by congestion and swelling of the disc.

C. Etiology.

Brain tumors, neuritis, syphilis, anemia, rheumatism, vascular diseases, poisons, infectious diseases, orbital diseases, and sinus diseases.

D. Pathology.

With cell infiltration. It is believed that a distention of the optic nerve sheath is present.

E. Subjective symptoms.

Defective vision. A peculiarity is, that severe cases may still have good vision.

F. Objective symptoms.

Disc is congested or white in color. Edges elevated and blurred. Swelling of the disc. Veins dilated and tortuous. Arteries small. May be hemorrhages. Field of vision may be defective. There may be a general retinitis. Both eyes are usually involved. In "oboked disc," so called, there is great edema of the nerve, dilated vessels and hemorrhages.

G. Course.

Months. It may clear up with no after-effects, or it may be followed by atrophy.

H. Treatment.

Medical.

II. ACUTE RETROBULBAR NEURITIS.

A. Definition.

Inflammation of the orbital portion of the optic nerve.

B. Etiology.

Infectious diseases, rheumatism, poisonings (methyl alcohol), syphilis and following inflammation of neighboring structures.

C. Pathology.

The fibers supplying the macula only, are involved in most cases.

D. Symptoms.

Rapid loss of sight. Tenderness and orbital pain. There may be no ophthalmoscopic signs or only moderate optic neuritis. Optic atrophy is likely to follow, especially at temporal side of disc, with central scotoma.

E. Treatment.

Medical.

III. CHRONIC RETROBULBAR NEURITIS.

A. Synonym.

Toxic amblyopia.

B. Definition.

A condition in which there is a gradual loss of vision and atrophy of the temporal side of the disc.

C. Etiology.

Tobacco, especially in conjunction with alcohol, is the most common cause. Carbon bisulphide, lead, arsenic and other poisons also cause it. A disease of middle and late life.

II. ACUTE RETROBULBAR NEURITIS.

- A. Definition.
Inflammation of the orbital portion of the optic nerve.
- B. Etiology.
Infectious diseases, rheumatism, poisonings (notably alcohol), syphilis and following inflammation of neighboring structures.
- C. Pathology.
The fibers supplying the macula only, are involved in most cases.
- D. Symptoms.
Rapid loss of sight. Tenderness and orbital pain. There may be no ophthalmoscopic signs or only moderate optic neuritis. Optic atrophy is likely to follow, especially at temporal side of disc, with central scotomata.
- E. Treatment.
Medical.

III. CHRONIC RETROBULBAR NEURITIS.

- A. Synonyms.
Toxic amblyopia.
- B. Definition.
A condition in which there is a gradual loss of vision and atrophy of the temporal side of the disc.
- C. Etiology.
Toxics, especially in connection with alcohol. It is the most common cause. Carbon disulphide, lead, arsenic and other poisons also cause it. Diseases of middle and late life.

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D. Pathology.

It is a chronic interstitial inflammation of the fibers supplying the macula, on the temporal side of the disc.

E. Symptoms.

Gradually failing vision. Diminished central vision and defect in the color perception around the point of fixation. Pallor of the temporal side of the disc and dilatation of retinal veins. Both eyes are affected.

F. Course.

Long. Does not produce total blindness.

G. Treatment.

Medical.

IV. ATROPHY OF THE OPTIC NERVE.

A. Definition.

Degeneration and shrinking of the optic nerve-fibers causing a white or gray disc.

B. Etiology.

1. Primary.

Idiopathic or accompanying brain and spinal cord diseases. May be hereditary. Begins in youth and gradually causes blindness.

2. Secondary.

Following optic neuritis, injuries, glaucoma, and diseases of the retina and choroid.

C. Pathology.

Chronic interstitial inflammation and atrophy of nerve-fibers.

D. Symptoms.

Gradual loss of sight and sometimes contrac-

D. Pathology.
It is a chronic interstitial inflammation of the fibers supplying the macula, on the temporal side of the disc.

E. Symptoms.
Gradually failing vision. Diminished central vision and defect in the color perception around the point of fixation. Pallor of the temporal side of the disc and dilatation of retinal veins. Both eyes are affected.

F. Course.
Long. Does not produce total blindness.

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Following optic neuritis, injuries, inflammation, and diseases of the retina and choroid.

C. Pathology.
Chronic interstitial inflammation and atrophy of nerve-fibers.

D. Symptoms.
Gradual loss of sight and sometimes contrain-

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tion of visual field and defects in color vision.
Disc may be gray, white or slightly pale. It shows
a central depression with sloping sides in advanced
cases.

E. Course.

Long.

F. Treatment.

Medical.

IV. TUMORS OF THE OPTIC NERVE.

The following are known to occur:- glioma;
endothelioma, fibroma, myxoma, sarcoma, and tubercles.

V. CONGENITAL AFFECTIONS.

A. Inferior Conus.

A white crescent, usually on lower side of
nerve.

B. Coloboma of the Optic Nerve-sheath.

There is a depression on lower side of disc.
It is due to absence of the sheath.

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tion of visual field and defects in color vision.
Disc may be gray, white or slightly pale. It shows
a central depression with sloping sides in advanced

cases.

2. Course.

3. Location.

4. Treatment.

5. Prognosis.

IV. TUMORS OF THE OPTIC NERVE.

The following are known to occur: glioma,
astrocytoma, fibroma, myxoma, sarcoma, and tubercles.

V. CONGENITAL DEFECTS.

A. Inferior Colliculus.

1. Location. Usually on lower side of

nerve.

2. Course of the Optic Nerve-sheath.

3. There is depression on lower side of disc.

It is due to absence of the sheath.

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CHAPTER XVIII.

DISEASES OF THE ORBIT.

I. PERIOSTITIS.

A. Definition.

Inflammation of the membrane covering the orbital surfaces of the bones of the orbit.

B. Etiology.

Injuries, rheumatism, syphilis, tuberculosis, and extension from neighboring sinuses.

C. Symptoms.

Tenderness, pain and swelling. Abscess with fistula and contraction of tissue may occur. This is followed by cicatricial ectropion.

D. Treatment.

Medical and Surgical.

II. ORBITAL CELLULITIS.

A. Definition.

An inflammation of the cellular tissues of the orbit, usually ending in suppuration.

B. Etiology.

Septicemia, erysipelas, injuries, idiopathic and extension from adjacent sinuses.

C. Symptoms.

Constitutional symptoms may be present. Swelling of the lids, chemosis, exophthalmos. Panophthalmitis and meningitis may occur.

D. Treatment.

Medical and surgical.

CHAPTER VIII
DISEASES OF THE ORBIT.

I. PERIORBITIS.

A. Definition.

Inflammation of the membrane covering the orbital surfaces of the bones of the orbit.

B. Etiology.

Injuries, rheumatism, syphilis, tuberculous, and extension from neighboring sinuses.

C. Symptoms.

Tenderness, pain and swelling. Abscess with fluctuation and contraction of tissue may occur. This is followed by circumscribed atrophy.

D. Treatment.

Medical and surgical.

II. ORBITAL CELLULITIS.

A. Definition.

An inflammation of the cellular tissues of the orbit, usually ending in suppuration.

B. Etiology.

Septicæmia, erysipelas, injuries, idiopathic and extension from adjacent sinuses.

C. Symptoms.

Constitutional symptoms may be present. Swelling of the lids, chemosis, exophthalmos. Phosphoræmia and meningitis may occur.

D. Treatment.

Medical and surgical.

III. TUMORS OF THE ORBIT.

Carcinoma, cyst, aneurism, angioma, osteoma and sarcoma have been known to occur.

I. EXOPHTHALMOS.

A. Synonyms.

Proptosis.

B. Definition.

Protrusion of the eyeball from bony orbit.
Causes, orbital inflammation and exophthalmic goiter.

II. PROLAPTIC EXOPHTHALMOS.

A. Definition.

Protrusion of the eyeball with prolapse of its and neighboring parts. A brain (artery) tumor shows the eye. Usually due to an injury to the optic nerve or a communication between the internal carotid artery and cavernous sinus.

B. Treatment.

Surgical.

III. EXOPHTHALMIC GOITER.

A. Synonyms.

Grave's Disease, Basedow's Disease.

B. Definition.

A protrusion of the eyeballs, accompanied by rapid heart action and enlarged thyroid glands. It is a neurovascular disease.

C. Symptoms.

Enlarged palpebral fissure (Stearns's sign), and frequent blinking (Wolff's sign). Then come the eyes turned downward, the upper lid does not follow (Müller's sign). In certain cases the eyeballs are affected, due to exposure.

III. TUMORS OF THE ORBIT.
Carcinoma, cyst, aneurism, angioma, colloid and
sarcoma have been known to occur.

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CHAPTER XIX.

DISEASES OF THE EYEBALL.

I. EXOPHTHALMOS.

A. Synonym.

Proptosis.

B. Definition.

Protrusion of the eyeball from hemorrhage, tumors, orbital inflammation and exophthalmic goiter.

II. PULSATING EXOPHTHALMOS.

A. Definition.

Protrusion of the eyeball with pulsation of it and neighboring parts. A bruit (murmur) is heard above the eye. Usually due to an injury that causes a communication between the internal carotid artery and cavernous sinus.

B. Treatment.

Surgical.

III. EXOPHTHALMIC GOITER.

A. Synonyms.

Grave's Disease; Basedow's disease.

B. Definition.

A protrusion of the eyeballs, accompanied by rapid heart action and enlarged thyroid gland. It is a nervous disease.

C. Symptoms.

Widened palpebral fissure (Dalrymple's sign), and infrequent winking (Stellwag's sign). When eyes are turned downward, the upper lid does not follow (Graefe's sign). In severe cases the cornea is affected, due to exposure.

CHAPTER XIX

DISEASES OF THE EYEBALL.

I. EXOPHTHALMOS.

A. Synonyms.

Proptosis.

B. Definition.

Protrusion of the eyeball from hemorrhage, tumor, orbital inflammation and exophthalmos.

II. PULSATILE EXOPHTHALMOS.

A. Definition.

Protrusion of the eyeball with pulsation of it and neighboring parts. A bruit (murmur) is heard above the eye. Usually due to an injury that causes a communication between the internal carotid artery and cavernous sinus.

B. Treatment.

Surgical.

III. EXOPHTHALMIC GOITER.

A. Synonyms.

Grave's Disease; Basedow's disease.

B. Definition.

A protrusion of the eyeball accompanied by rapid heart action and enlarged thyroid gland. It is a nervous disease.

C. Symptoms.

Widened palpebral fissure (Dalrymple's sign), and infrequent blinking (Stellwag's sign). The eyes are turned downward, the upper lid does not follow (Graefe's sign). In severe cases the cornea is exposed, due to exposure.

D. Treatment.

Medical and surgical.

IV. MISCELLANEOUS.

A. Megalophthalmos.

Enlarged eyeball.

B. Microphthalmos.

Congenitally small eyeball.

C. Phthisis Bulbi.

Shrunken eyeball due to extensive inflammation.

D. Enophthalmos.

Recession of eyeball into the orbit. Rare and usually due to injury.

E. Anophthalmos.

Absence of the eyeball.

F. Buphthalmos.

1. Synonyms.

Hydrophthalmos; Keratoglobus; Congenital glaucoma.

2. Definition.

Progressive enlargement of whole eyeball. Increased tension. Begins before or right after birth.

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D. Treatment.
Medical and surgical.

IV. MISCELLANEOUS.

A. Microphthalmos.
Enlarged eyeball.

B. Microphthalmos.
Congenitally small eyeball.

C. Enchkele Bulbi.
Shrunken eyeball due to extensive inflamma-

tion.
Enophthalmos.
Recession of eyeball into the orbit. Rare and
usually due to injury.

E. Anophthalmos.
Absence of the eyeball.

F. Epithelium.
A. Synchysis.
Hydrophthalmos; keratoglobus; congenital
glaucoma.

B. Detachment.
Progressive enlargement of whole eyeball.
Increased tension. Begins before or right after
birth.

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CHAPTER XX.

GLAUCOMA.

I. GENERAL.

A. Definition.

A disease characterized by increased intra-ocular tension and degenerative changes.

B. Varieties.

Acute inflammatory glaucoma, chronic inflammatory glaucoma, simple glaucoma and secondary glaucoma.

C. Etiology.

Predisposing causes are:- age (over forty), high arterial tension, arteriosclerosis and hyperopia. The exciting causes are physical and mental depression, insomnia, mydriatics, etc.

D. Pathology.

Interference of the current of the aqueous through the pupil, anterior chamber, pectinate ligament and into Schlemm's canal. There may be a blocking up of the iris angle or of Schlemm's canal, cutting off the outflow. This is followed by increased intra-ocular tension. This is the theory upon which glaucoma is explained.

E. Prodromal Symptoms.

Failure of accommodation, shown by need of stronger glasses. There may be attacks of blurred vision and halos around lights. This occurs for a year or two before the first attack.

F. Symptoms.

Severe pain occurring suddenly in the head and eye. Rise in temperature, nausea and vomiting. Lids swollen, eyeball congested, cornea steamy, with anesthesia of its surface, anterior chamber shallow,

CHAPTER XX

GLAUCOMA

I. GENERAL

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A disease characterized by increased intra-ocular tension and degenerative changes.

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Acute inflammatory glaucoma, chronic inflammatory glaucoma, simple glaucoma and secondary glaucoma.

C. Etiology.

Predisposing causes are: age (over forty), high arterial tension, arteriosclerosis and myopia. The exciting causes are physical and mental depression, hemorrhage, nephritis, etc.

D. Pathology.

Interference of the current of the aqueous humor through the pupil, anterior chamber, posterior chamber and into Schlemm's canal. There may be a blockage up of the iris or of Schlemm's canal, cutting off the outflow. This is followed by increased intra-ocular tension. This is the theory upon which glaucoma is explained.

E. Proximal symptoms.

Failure of accommodation, shown by need of stronger glasses. There may be attacks of blurred vision and halos around lights. This occurs for a year or two before the first attack.

F. Symptoms.

Severe pain occurring suddenly in the head and eye. Rise in temperature, nausea and vomiting. Iris swollen, eyeball congested, cornea steamy, with anesthesia of its surface, anterior chamber shallow.

pupil dilated and oval in shape, and iris discolored. Media cloudy interfering with a view of the fundus. Vision rapidly (in a few hours) diminishes in many cases to perception of light. Tension very high. The attack lasts from a few hours to a few days. The symptoms then gradually decline, but leave the vision impaired. The other eye may be affected at any time. After a few weeks or months the acute attack recurs and later is followed by subacute or chronic glaucoma.

G. Diagnosis.

See table below for differential diagnosis, which applies to acute conditions.

H. Differential Diagnosis.

Table.

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TABLE.

	Glaucoma	Iritis	Conjunctivitis	Keratitis
Age	Over 40	Any	Any	Any
Tension	Plus	Normal	Normal	Normal
Secretion	None, or watery	None, or watery	Mucopurulent	Lacrimation
Congestion	General, especially episcleral	General, especially circumcorneal	Conjunctival, especially of lids	Rose-pink. Prominent near cornea
Cornea	Cloudy and steamy	Cloudy	Clear	Cloudy or opaque
Anterior Chamber	Shallow	Unchanged	Unchanged	Unchanged
Iris	Discolored	Discolored	Unchanged	Unchanged
Pupil	Dilated, oval	Contracted, synechia	Unchanged	Unchanged
Pain	Severe, continuous	Especially at night	None	Moderate, constant, sticking
Vision	Much reduced	Somewhat reduced	Good	More or less impairment
Corneal Sensitiveness	Diminished	Normal	Normal	Increased
Photophobia	Slight	Slight	None	Severe
Vessels	Dilated, widely distributed	Straight. Not movable with conjunctiva	Superficial. Tortuous. Freely movable with conjunctiva	Straight. Network around cornea
Field of Vision	Contracted	Dimmed slowly	Normal	May be limited by opacities
Atropin and Esserin	Atropin aggravates pain. Esserin mitigates.	Atropin soothes, esserin aggravates pain	No effect	No immediate effect. Both benefit later
Conjunctiva	No thickening	Some thickening. Not easily thrown into folds	Thickened. Easily thrown into folds	No thickening.

I. Prognosis.

Fair with proper treatment.

J. Treatment.

Medical and surgical.

II. CHRONIC INFLAMMATORY GLAUCOMA.

A. Definition and Symptoms.

Follows acute form. Tension permanently increased. Pain. Enlarged scleral vessels. Shallow anterior chamber. Pupil dilated, oval and immobile. Vision lowered or destroyed.

III. ABSOLUTE GLAUCOMA.

No perception of light. Very high tension. Cataractous lens. Dilated pupil. Shallow anterior chamber.

IV. SIMPLE GLAUCOMA.

A. Synonyms.

Chronic, non-inflammatory glaucoma; Glaucoma simplex.

B. Etiology.

Age over forty. Hyperopia, high arterial tension and arterio-sclerosis.

C. Pathology.

Same as the acute form.

D. Subjective Symptoms.

Gradual decrease in vision. Halos around artificial lights. No pain. Sometimes a feeling of pressure.

E. Objective Symptoms.

No congestion. A few enlarged scleral vessels. Anterior chamber may or may not be shallow. Pupil may be normal or slightly dilated. Lens, cornea and

I. Prognosis. With proper treatment, the disease is curable. Treatment. Medical and surgical. Vision lowered or destroyed. Pupil dilated, oval and immobile. Pain, enlarged scleral vessels. Shallow anterior chamber. Lens, cornea and iris normal or slightly dilated. Lens, cornea and iris normal or slightly dilated.

II. CHRONIC INFLAMMATORY GLAUCOMA. A. Definition and Symptoms. Vision lowered or destroyed. Pupil dilated, oval and immobile. Pain, enlarged scleral vessels. Shallow anterior chamber. Lens, cornea and iris normal or slightly dilated. Lens, cornea and iris normal or slightly dilated.

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B. Pathology. Age over forty. Hypertopia, high arterial tension and arterio-sclerosis.

C. Pathology. Same as the acute form.

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E. Objective Symptoms. No congestion. A few enlarged scleral vessels. Interior chamber may or may not be shallow. Pupil may be normal or slightly dilated. Lens, cornea and iris normal or slightly dilated.

vitreous clear. Optic nerve; atrophic, white or gray. "Cupped Disc" which shows a broad scleral ring, just inside of which, the nerve drops abruptly with an over-hanging margin. Vessels drop over the margin abruptly and appear again at the bottom of the cup. Pulsation of the arteries. Tension is increased, but not constantly. Concentric contraction of visual field, more pronounced on nasal side. Sometimes irregular contractions of the visual field and isolated scotomata. Visual acuity reduced.

F. Course.

Both eyes affected at the same time as a rule. Continues for a number of years. Without treatment it ends in absolute glaucoma.

G. Prognosis.

Poor.

H. Treatment.

Medical and surgical.

V. SECONDARY GLAUCOMA.

Follows swelling of the lens, intra-ocular tumors, injuries, dislocation of the lens, hemorrhages, choroiditis, retinitis and closure of the pupil.

VI. HEMORRHAGIC GLAUCOMA.

May appear after retinal hemorrhages.

retrograde clear. Optic nerve; atrophic, white or gray. "Cupped disc" which shows a broad scleral ring just inside of which the nerve drops abruptly with an overhanging margin. Vessels drop over the margin abruptly and appear again at the bottom of the cup. Relaxation of the arteries. Tension is increased, but not constantly. Concentric contraction of visual field, more pronounced on nasal side. Sometimes irregular contractions of the visual field and isolated scotomata. Visual acuity reduced.

F. Course.

Both eyes affected at the same time as a rule. Continues for a number of years. Without treatment it ends in absolute glaucoma.

G. Prognosis.

Poor.

H. Treatment.

Surgical and medical.

V. SECONDARY GLAUCOMA.

Follows swelling of the lens, intra-ocular tumors, injuries, dislocation of the lens, hemorrhages, choroiditis, retinitis and closure of the pupil.

VI. HEMORRHAGIC GLAUCOMA.

May appear after retinal hemorrhages.

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CHAPTER XXI.

SYMPATHETIC OPHTHALMIA AND IRRITATION.

I. SYMPATHETIC OPHTHALMIA.

A. Definition.

A destructive inflammation of one eye (called the sympathizing eye), transferred from the other eye (called the exciting eye), which has been subject to a similar inflammation. The condition is comparatively rare.

B. Etiology.

Children most susceptible. Due usually to a chronic plastic irido-cyclitis, in the exciting eye, produced in most cases by a perforating wound in the ciliary region. It may follow cataract operation. It may have begun as a perforating ulcer of the cornea.

C. Pathology.

There are three theories as to the transference of the inflammation.

1. Sympathizing eye, already irritated, producing disturbances in nutrition and circulation is easily involved through the optic nerve.
2. Direct transference of micro-organisms through the optic nerve and sheath.
3. Transmission of toxins or bacteria by unknown means.

D. Symptoms (Exciting Eye).

Pain and congestion. Ciliary tenderness when pressure is applied through the lid. Minus tension. Posterior synechia. Pupil may be blocked by exudate.

E. Symptoms (Sympathizing Eye).

Chronic inflammation of the uveal tract. The

CHAPTER XII.

SYMPATHETIC OPTHALMITIS AND IRRITATION.

I. SYMPATHETIC OPTHALMITIS.

A. Definition. A destructive inflammation of one eye (called the sympathizing eye), transferred from the other eye (called the exciting eye), which has been subject to a similar inflammation. The condition is comparatively rare.

B. Etiology.

Children most susceptible. The usually form chronic plastic iritis-ovoiditis in the exciting eye, produced in most cases by a perforating wound in the ciliary region. It may follow certain operations. It may have begun as a perforating ulcer of the cornea. The condition is usually bilateral. There are three theories as to the transfer-ence of the inflammation.

1. Sympathizing eye, already irritated, producing disturbances of nutrition and circulation in the eye, which involve the optic nerve.

2. Direct transference of micro-organisms through the optic nerve and sheath.

3. Transference of toxins or bacteria by lymphatic channels.

C. Symptoms (Exciting Eye).

Pain and congestion. Ciliary tenderness when pressure is applied through the lid. Pupillary tension. Posterior synechia. Pupil may be blocked by exudate.

D. Symptoms (Sympathizing Eye).

Chronic inflammation of the uveal tract. The

disease may begin three ways:-

1. Slight ciliary congestion. Punctate spots on Descemet's membrane. Deep cloudy anterior chamber. Slight dilatation of pupil with some synechiae. Opacities in the vitreous.
2. May begin at once as a plastic irido-cyclitis. Pain, ciliary tenderness, ciliary congestion, pupil small and blocked, vitreous opacities, band formations in vitreous, detachment of retina and shrinking of eyeball.
3. It may begin as a neuro-retinitis.

F. Course.

Appears between the third and sixth month after the original injury. It has been known to appear as early as two weeks after, and as late as twenty years after. The sympathizing eye is very often attacked during the active inflammation of the exciting eye. It may appear without warning or there may be signs of sympathetic irritation. The course is chronic in the sympathetic eye with acute outbreaks.

G. Prognosis.

Usually causes blindness. The most favorable cases are those appearing as a neuroretinitis.

H. Treatment.

Surgical.

II. SYMPATHETIC IRRITATION.

A neurosis. It appears in the sympathizing eye as lachrimation, photophobia, impaired accommodation, asthenopia, and contraction of visual fields.

disease may begin three ways:-

1. Slight ciliary congestion. Punctate spots on Descemet's membrane. Deep cloudy anterior chamber. Slight dilatation of pupil with some synechiae. Opacity in the vitreous.

2. May begin at once as a plastic irido-cyclitis. Pain, ciliary tenderness, ciliary congestion, pupil small and fixed, vitreous opacities, band formations in vitreous, detachment of retina and shrinking of eyeball.

3. It may begin as a neuro-retinitis.

F. Course.

Appears between the third and sixth month after the original injury. It has been known to appear as early as two weeks after, and as late as twenty years after. The sympathizing eye is very often attacked during the active inflammation of the existing eye. It may appear without warning or there may be signs of sympathetic irritation. The course is chronic in the sympathizing eye with acute outbreaks.

G. Prognosis.

Usually causes blindness. The most favorable cases are those occurring as a neuro-retinitis.

H. Treatment.

Surgical.

II. SYMPATHETIC IRRITATION.

A neurosis. It appears in the sympathizing eye as lacrimation, photophobia, impaired accommodation, anisocoria, and contraction of visual fields.

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